

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. II.*

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.

(Formerly Student at the Royal Bergakademie, Clausthal).

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SECTION I.

ON THE MODE OF OCCURRENCE OF THE USEFUL MINERALS OR MINERAL DEPOSITS.

The extension of a vein in the direction of its strike or dip is extremely variable; many lodes can be traced from one to three or even four and five miles in length, though not productive over the whole length. The lodes in the Hartz can be traced over a length of from eight to ten English miles. In America, especially California, some of the lodes attain the enormous length of from 40 to 50 English miles.

The extension of lodes downwards is certainly in most cases much greater than it is possible with our present knowledge and appliances in mining to follow them, and one usually follows a lode in the direction of its strike and dip only so long as it gives hopes of paying. It is seldom that a lode is followed in the direction of its strike through 200 fms. of dead ground, though it is quite possible that within the next few fathoms the lode might become "quick." In the direction of the dip the increase in difficulties and cost may become so great that, although the lode *per se* might be as rich as ever, it does not pay to follow it any deeper. At present the deepest workings at Clausthal, in the Herzog Wilhelm Mine, are over 700 fms., some of the workings being over 16 yards wide. It is probable that the present appliances are limited to a depth under 4000 ft., and it does not yet appear probable that that depth will ever be doubled. Under these circumstances it is pretty safe to conclude that lodes go much deeper down than it will ever be possible to work them. It is doubtful if there is any single case of a lode being worked downwards to the end—that is, the end of the fissure; such cases as have been cited of the wedging out of veins downwards or of ore totally failing are due evidently to the fact of the varying width of a lode; and that the ore is never equally divided in a lode, being in many places totally wanting, and that the workings have been given up owing to the increased cost at that depth. So long as the fissure continues there is always the possibility of its increasing in width and containing ore.

The idea of "gash veins" (a name given to veins which wedge out or close at a comparatively short distance from the surface) has often had much to do with the opinion of miners as to the wedging out of any particular lode, and in many cases has been applied without sufficient grounds.

We shall now proceed to consider a few of the circumstances on which continuity in depth may be supposed to depend.

Fissures may be confined to one class of rock, from the fact that the force which may have been sufficient to produce fracture in the one class did not suffice to affect the adjoining classes of rock (or the upper rock may be a subsequent cover, and not contemporaneous). In such a case, when the fissure is from the surface, they come under the name of "gash veins." Thus, we see that we see that the class of rocks may exercise a most important influence on the extent of a lode. It is seldom the case that the walls of a lode are parallel to each other for any distance either in the dip or strike, and for this reason:—As might naturally be supposed in beds of unequal hardness any fracture which might be produced would be to form two smooth surfaces or planes, which, if slid upon each other in any direction, would remain parallel. If a mere opening of the ground were to take place then the thickness of the resulting lode might be expected to retain the same thickness throughout, and the two walls of the lode, though not planes, might still be everywhere parallel. But mere fissures are seldom produced without one side of the fissure being moved to some extent (a throw up or down), so that the sides of the resulting lode are seldom parallel to each other for any distance. The effect of this in varying the thickness of a lode will at once be evident if we take a sheet of paper and cut it in any sinuous line, and then slide one portion of the paper upwards or downwards. In some places along the sinuous line the edges might touch each other, which would represent a supposed wedging out of the vein, and in others the two edges would approach without touching, and then widen out again. That this may cause a very considerable variation in the thickness of a lode will be evident when we remember that in some cases the throw may amount to as much as 600 feet. In some lodes, however, even to very great depths, the average thickness remains throughout pretty nearly the same. As examples may be cited the Simon Mine, at St. An. treasberg, 410 fms. deep, and the Tre-aven Mine, Cornwall, 340 fms. deep. It may be asked how far this can be explained from the fact of the rock through which the lode passes remaining the same? There appears to be no reason why if the ore is good it should not continue so until the character of the rock changes. It is not difficult to suppose the case of a vein rich at the surface existing in granite or any crystalline rock which continues to an unknown depth, to which the rock itself may reach, or, in the case of a lode in a stratified rock, that the beds dip at such an angle that the vein may exist in the same bed for an enormous depth.

The width of veins, as we have already indicated, varies considerably, from the thickness of a sheet of paper, as in the gold and tellurium clefts in porphyry at Offenbanya, in Transylvania. The veins in Cornwall and Devonshire are not very wide, generally 3 to 3½ ft., sometimes as much as from 10 to 15 ft., and, in very rare cases, 30 to 40 ft. Their length seldom exceeds a mile. In the North of England the lodes vary from 6 in. to 6 ft., being on an average from 3 to 4 ft. wide. In the Hartz the lodes occur of considerable width, in which one, however, reckons the branches which lie close to the principal lodes, and are worked at the same time as these. The Silberader set, near Clausthal, is met with from 20 to 30 yards in width, and even as much as 50 yards; the Burgstädter set, which lies somewhat to the north-west of the Silberader set is 40 yards wide, and the Lantenthaler Glick lode is as much as 80 yards in width. The lodes are not very wide at Freiberg, seldom exceeding 3 to 4 ft. wide, as three exceptions may be mentioned—the Halsbrückner spat lode, from 10 to 13 ft. wide; the Louis and the Three Princes spat lode, from 6 to 9 ft. wide. The Veta madre, in Guanacato, in Mexico, according to Humboldt, where the principal lode is joined by a side branch, is 105 to 175 ft. in width, and even by itself amounts to 90 ft. in width; it has been traced along its strike over a length of 6000 fathoms.

Although it cannot be affirmed as a rule, still we usually find that the widest veins are the longest. Generally speaking, the width seldom exceeds 5 to 10 fms., and in the greater majority of instances the extreme width lies between 2 in. and 13 fathoms.

B.—The formation and contents of veins: According to our definition all true veins are fissures, which have become filled with minerals. It is possible that the formation and the filling up of these fissures were independent phenomena, but in any case the formation of the fissure must have occurred first, whether it was immediately accompanied by the filling up of the fissure or no. The cause of the fracture of the rock has been variously explained. According to Werner, the fissures are the results of a shrinking, as the stratified rocks were raised above the level of the sea, and became dry, or the sinking of a portion through its own weight, or of the shocks of earthquakes. Many geologists hold them to be the result of the shrinking, due to the gradual cooling of the earth. Von Cotta, following Von Beust, considers that although it is possible that each of the above causes was sufficient, and may have been the real cause, the great majority of veins are the result of volcanic activity—or, in other words, of earthquakes. It is well known that even at the present day similar fissures are formed by earthquakes, and often like veins in groups, which, in so far as they are the result of the same earthquake, are tolerably parallel. Indeed, it appears probable that the same cause which has operated in raising and depressing the strata—that is, in giving the strata its present inclined position—has produced the fissures, since we have in the latter case only to allow it to have had greater force. Between the dip of lodes and that of the surrounding strata one often finds such an agreement that it is evident what produced one might easily have produced the other.

As we have already remarked, a lode is never ore-bearing throughout its whole extent; the greater part of the contents are non-metallic, and in contradistinction to these are called "veinstone." Where the lode contains none but non-metallic minerals the miner is said to be working in "dead ground." The minerals which most usually occur as veinstone are—quartz spar (calc spar, bitter spar, brown spar, manganese spar, spathic iron, heavy spar, fluor spar), witherite, apatite, aragonite, mica, chlorite talc, serpentine, angite, hornblende, granite, felspar (orthoclase, albite, oligoclase, labradorite, scapolite), zeolites (stilbite, harmatomi, limonite, apophyllite), topaz, tourmaline, epidote, axinite, and clay, which is most probably the result of the grinding and decomposition of the country rock; this usually lines the sides of the lode, and often in breaking down the ore comes off with it; this is the "capel" of the Cornish miner. Sometimes the country rock itself forms the chief constituent of the veinstone; this is well illustrated in the Hartz lodes, where a mild clay-slate and grauwacke, as a rule, form the principal non-metallic parts of the lode, although in some places quartz and calc spar, with small quantities of heavy spar, spathic iron, &c., and in others heavy spar and spathic iron prevail. The peculiarity of the veins is that there are usually several together, which run to and from one another, or that a great mass of the lode consists of a mild clay-slate or disturbed grauwacke, from which small veins run off into the country rock. The ore consists chiefly of galena, copper pyrites, iron pyrites, zinc blende, fahlerz, and bournonite.

After the formation of the fissure a great deal of grinding appears to have occurred; this action is indicated by the formation of "slickensides," which can often be noticed over hundreds of fathoms square. These slickensides consist of polished surfaces, with parallel striae. When a lode has suffered two separate throws, two sets of striae may be observed crossing each other. These slickensides sometimes cut up the ground to such an extent as to render the lode valueless. In faulty ground in coal seams slickensides are very frequent. At or soon after the time when the fissure occurred, a part or side of the fissure, being more loose or incompetent, may have fallen in a lode upon the lower wall; this, when met with by the miner, especially if working from below, is called a "horse," sometimes a "rider," and may be extremely dangerous from its liability to fall in. When met with upon the back or top it may be mistaken for a slope of dead ground.

As in ordinary rocks, we find the minerals of which they are composed arranged in the most different manner, so we have a great variety in the structure of mineral veins. This is for the miner a subject of the greatest importance, for with the same minerals there may still be a serious difference in physical structure of a vein. For example, the ground in which a miner is working may be quartzose, or a compact limestone or calcite, interspersed with quartz, excessively hard, requiring the use of powder, but not costing much in timber for its support, but after a time the quartzose material may occur in a disintegrated condition, which, while not requiring much powder, may entail much trouble and expense in timber for the support of the sides of the lode, and the protection of the men. In fact, the manager of a mine should look well at the fresh cut faces at the end of a gallery, as it is from these that he must judge the direction in which to pursue a lode, the expense of breaking it, and the value when broken, although in many mines much difficulty will be experienced from the fact that where fuses and shots are used the face soon becomes blackened. The varieties in the texture of veins may be subdivided into the following as characteristic:—

1.—COMPACT: That is when the individual particles cannot be distinguished.—Examples: Brown ironstone, bitter spar.

2.—GRANULAR: When the individual particles form grains of about the same size.—Examples: Granular magnetite.

3.—MASSIVE: A modification of the granular structure in which the individual particles are of very different sizes, differently shaped, and generally also very unequally divided; this modification is most usually found in lodes and stockwerke.

4.—IMPERFECT: In a regular compact granular or slaty mass, in which the ore itself appears in grains, laminae, or crystals, usually unequally divided; if the ore and minerals appear as crystals, this corresponds to porphyries among rocks.

5.—BRECCIATED: In some lodes conglomeratic pebbles occur; they have dropped into the lode during its formation, and have been cemented together by the ore. Brecciated lodes are those which have been broken up and cemented together again in any way; they are only met with in certain parts of veins, and when the vein cheeks nearly approximate so much of the angular fragments may occur as to render the vein in that part valueless, and should a vein occur in this way its working ought not at once to be given up, as in a short distance it may become as productive as before. The brecciated structure occurs where the mechanical has preponderated over the chemical filling up of the vein. Von Cotta distinguishes several modifications. The fragments may be without any particular appearance in the principal mass of the lode; they are surrounded by concentric layers, or by a radiating crystalline texture; they are pieces of the country rock which have fallen in where the horses of the Cornish miner are pretty frequent; they result from previous fillings of ore which have been broken up; this is more especially the case when the veins have possessed a ribbon-like structure; they form the greater part of the contents, and are often very large and flat; the lode may then be said to consist of compressed country; this form may pass into broken ground, traversed by small strings, branches, &c.

6.—THE RIBBON-LIKE STRUCTURE: The individual particles, or combinations of them, form parallel layers of equal or unequal thickness; this texture is most frequently found in ore-yielding lodes. The layers run parallel to the walls of the lode; the first and oldest layers have been deposited on both walls, and upon these the second layers, and upon these the third layers, and so on until the whole vein was filled. The consequence is that vein, so far as concerns the kind of minerals, is symmetrical on both sides of the centre. Sometimes a particular species occurs only once on both sides of the vein; this arrangement has been called one of simple symmetry by Von Cotta; at other times the same mineral may occur two or three times on both sides of the lode. As an excellent example may be mentioned a portion of the Princes Spat lode; this kind of arrangement is called one of repeated symmetry. It has often occurred that after the filling up of a vein it has again been split open and again filled, when we may have the appearance of several parallel veins. In lodes with this ribbon like structure we may sometimes only work away those ribbons which contain ore, leaving behind those which it is not necessary to raise, as quartz, calc spar, &c., which saves much after dressing. Often the joining or junction of the ribs with the wall may be such that it can be more or less easily broken away, and enable the miner distinctly to see the lode and follow it. This junction is sometimes called "flookan," "sticking." A flookan lode takes its name from the tenuous earth or clay that sometimes runs outside some veins immediately between either wall of the lode and the lode itself; it is seldom absent from a cross course. The flookan of a course effectually dams back the water, and prevents it circulating from one part of the metallic lode to the other that is separated by the cross-course.

7.—A lode is said to have a drusy character when it has numerous irregular, mostly angular-chapel, cavities, the sides of which are lined with crystals; when several of these are connected together they usually occupy the middle portion of the lode. In brecciated lodes they are usually found between the larger fragments of the country. Quartz, calcite, and zeolites usually occur in these druses.

One of the most interesting and practical questions for a miner, and one which as yet has received no definite answer, is—What are the circumstances which are of influence on the ore-bearing of a lode? We shall endeavour shortly to consider the most important of what is known on the subject.

1.—THE DEPTH: It was for a long time the opinion in vein districts that lodes are only profitable to a certain depth, in consequence of a diminution in the quantity and quality of the ore, that it entirely ceased below certain depths. This opinion is most probably due to the fact that when at a depth (say) of 100 fms. in any particular lode the ore ceased; an attempt was rather rashly made in a horizontal direction to sink another deposit of ore than to counter the difficulties of sinking another 50 fms. in dead ground to a comparatively small depth to which it has been worked, and from there downwards be entirely destitute of ore. It is, however, quite a different question when we find that the character of the ore has changed. As yet, however, our experience is generally limited to a depth under 2500 ft., which must be considered too restricted to allow of us forming a decided opinion on the question of the cessation of ore at somewhat greater or double the depth. The opinion, however, a distinction to be made between change of ore at surface or upper part of a lode, and that at considerable depths. The fact is common to nearly all veins, and is not an original but a secondary variation, due to the decomposition and disintegration, caused by atmosphere, surface water, and similar causes. Both variations, however, important to the miner, although they must not be founded upon one another.

SURFACE APPEARANCE: Sometimes a great amount of change may be produced since the formation of the lode. Some lodes appear at the surface, although as a general rule good lodes do not appear at the surface, and are close and dense in structure, and especially in a clayey soil, bear to the surface, but others, if large and jointed, with a sandy soil, or in a jointed country, and having a considerable amount of pyrites, will be greatly changed. This change in appearance of the lode is termed "gossan," and is due to the decomposition of rich pyritous ores. It has been called the "iron hat" by the Germans, because in consequence of the decomposition of the pyrites, which mostly contain a considerable quantity of iron, the oxide and hydrated oxide of iron were formed, the existence of which throughout the whole mass of the lode gives it a prevailing brown colour. The mass often resembles ironstone, and is frequently even worked as such. Of course, besides sulphurous ores and iron ore other substances, such as galena, copper glance, and lead and copper ores, will be subject to decomposition; but this will not affect to such an extent the colour of the gossan. In America the gossan of the copper lodes is often of a blue or greenish colour, owing to the oxidation of the copper ores. The usual characteristics of a gossan consist in the decomposition, disintegration, and softening of the matrix of the lode, and sometimes of the joining country, in a deficiency of sulphides and a prevalence of oxides and oxidised salts and combinations with water, carbonaceous phosphoric and arsenical salts, chlorine, bromine, &c., which occasion brilliant colours; the change is sometimes also the result of the occurrence of native copper, silver, mercury, &c. In lower down these decomposed ores gradually disappear, giving place to sulphides and spathic iron.

The gossan usually fills the whole width of the vein, and sometimes to a considerable depth. Near Redruth the gossan was 150 ft. deep; near Liskeard 150 ft., and full of crystalline cuprites in the lower part. At Prizibram, in Bohemia, the gossan is chiefly the result of the decomposition of spathic iron, and is in many places in iron that it has been worked as an iron ore; the galena has changed into the white-green, grey-brown, and black ores of lead and silver is entirely wanting at considerable depths. The copper lodes at Lake Superior contain native copper and silver only at the upper parts.

With regard to the change of ore at considerable depths we are yet only supplied with a tolerable number of good examples of gold and silver veins. Although it has been stated that the precious metals, as gold and silver, grow poorer as we descend, and several examples have been adduced, still the fact has been disputed by Baron Richthofen, who reports in California an increase in the richness of the ore as we descend is as often as a decrease. In the Comstock lode no particular disturbance of the surface has taken place, and the iron ores are not less plentiful as we descend as the surface, where the amount of silver is the greatest. In the River district (Nevada) the lodes have a well-defined gossan, which is extremely rich in silver, but even at the greatest depths the lode is still very rich in silver. At Kathauseberg, in the Sauerberg Alps, the crystalline slates are intersected by gold-bearing veins. The veins cross the valleys also, which are 2000 ft. lower than the mountains, and at this level the gold appears to have entirely disappeared—at least they are only worked on the summit of the mountains, at an elevation of from 6000 to 8000 ft. above the level of the sea, where the veins contain small wedges of false rich in gold and silver. As the disappearance of the gold is common to all veins at this level it cannot be attributed to accidental occurrence. In one of the mines near Scheunitz gold was found disseminated near the surface, and some 50 years ago crystals and accumulations of native gold were met with, but since the mine has been deeper they have not been seen. At 200 fms. depth the silver gold had become decidedly poorer than above.

If it could be universally proved that there is an original variation in the ore with the depth it would not be difficult of explanation. If we take it for granted that the ore has become decomposed from solution, as the majority of ores most decidedly have, we cannot but expect that the increase of temperature and pressure at considerable depths will exercise an important influence on the precipitation of any salt from the solution.

MANCHESTER GEOLOGICAL SOCIETY.

At the monthly meeting, on Tuesday (Mr. J. AITKEN in the chair) the following papers were read:—

AMBULANCES FOR COAL MINES.

MR. DICKINSON, H.M. Inspector of Mines, said he had been requested by Sir E. Lechmere to bring before the notice of the society in order that it might get through them to the mining public the subject of ambulances, and the desirability of their being provided at mines in the case of accidents. He said that on a former occasion when Sir E. Lechmere had communicated with him on the same subject, he had not given it his attention because he had a notion that to have such things in collieries would give to miners the feeling of having a coffin in the house. Miners were very handy when occasion required in rigging up a shutter or other contrivance as an extempore ambulance, but the proposed ambulance, judging from the drawings and description contained in the book sent him by Sir E. Lechmere, he had no doubt would be very suitable for its intended purpose. He might add that there was scarcely a single colliery in that district in which either an ambulance or a pallanquin was kept.—One of the members said he believed that in South Yorkshire they were pretty general.—MR. MARTIN observed that when men suffering from injuries by colliery accidents had to be roughly carried about on unsuitable appliances it frequently caused very acute agony.

SINKING THROUGH QUICKSAND IN MINE SHAFTS.

MR. W. EVANS read a paper describing the mode of operation pursued in sinking through the quicksand and other deposits overlying the metals at Royton, Lancashire. The sinking was carried out by means of very strong cast-iron drums, which were sunk one after another in telescope fashion, the chief difficulty with which they had to contend being the constant rising of sand and outbursts of water. MR. DICKINSON said he had seen this sinking in operation, and they had an immense quantity of sand and water to contend with. There were a variety of ways of contending with these things, and probably the method pursued by Mr. Evans was the least expensive.

MR. TOPPING said he had had a considerable amount of experience in sinking through quicksand. The greatest difficulty he had met with was not so much with the sand as with the marl. They had no difficulty in passing through the sand, as they must have made an average of 1 yard in 12 hours through the quicksand; the difficulty was when they had to go into the second marl, because when they took away the sand from the uppermost marl it came pressing down with a tremendous force. He had come to the conclusion that if he had to sink another pit he should have no cutters at all, as they

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For many years, but not express their deep regret, a regret that are sure will be felt by many years. The death of Mr. Harvey, one of the original directors of the company, was a great loss to the company. Though for some time he had been suffering from ill health, and had been advised to retire from the company, the management, he never ceased to feel a deep interest in the company, and that one could not but be proud to have him as a member of the company. He on many occasions had been asked to retire from the direction, but the shareholders had always suggested that he should remain. That, however, has now been done. Acting on a suggestion made at a general meeting of the company, the shareholders have proposed to fill up his place. The number of a last number of directors

though one of the cross-cuts started at pretty well the end of the level was within 3 or 4 feet, they were unable to go on with the operation. He must for the moment take them back to the discovery in the 112 west. Capt. Pryor had passed through in the western level a cavity which yielded quantities of water, and the question was—where did that water come from, and what would be its influence upon the workings in future? The water in the old Coedy-fedw workings could be seen from the surface, but now all the water had disappeared from the workings as far as they could see, and what value would the draining of these old workings have for comparison with the new? They got rid of the water they had accumulated from men to work the ore on tribute, and the drift was left to take care of themselves. It also showed them what to do in the 112 east. Now, where was the Coedy-fedw lode? They could not find it up to the present time, but now that the old workings were drained he believed that before February was over they would be able to find where that lode was. Therefore the work which had been done had not been thrown away, notwithstanding they might regret the delay and difficulty which had taken place. Turning to the west, the 112 had been driven by the company 300 yards. In the directors' report reference was made to the discovery of ore which took place in Parry's shaft in 1875, and at that time the shaft was very small, and the dump small, and therefore it was difficult to attempt to work the lode to raise the ore. The ore was soft, when they were sinking was very soft, and the lode was in soft ground, easily worked, but the accumulation of water at the time they were attempting to work it caused the ground to swell and the timber to crack, and the men were debarred from going into the sump. What was the next point to go for? They started an incline from the 112 west to mount up in the direction of this sump. During the operation they had lead for the whole distance, not in large quantities, but driving paid for itself. When he was down at the mine it was proved distinct that the line of ore which they had carried up was not Parry's ore at all, but an independent run of ore which had never before been proved in the mine, which was the discovery of the directors. Parry's ore was not the ore which they had carried up. Parry's. He had recommended Capt. Pryor to cross cut from the top of the rise to the sump, and at the beginning of this year they began to get an increase of ore, and was issued from the forebore shaft, which showed they were going in the right direction. The operations which had been undertaken, although disappointing in the result, had been very advantageous on the whole, because it had shown that the run of ore which they had passed through was an independent run. The discoveries of 1875 still existed, and as the facilities for working were numerous, the dividends would probably be considerable. The forebore of the 112 was driven underneath Parry's shaft. Judging from what had taken place in adjoining mines, they were not likely to be disappointed. They had not yet got to the end of the incline, immediately the cavity to which he alluded was passed the lode was met, but of character; and at the time the work was stopped on account of the floods, yielding more than it had ever done since they had driven the 112 west. Referring to the difficulties which they had had to overcome in the works east and west, it could easily be imagined, considering the distance they had driven, that they had been some difficulty with the ventilation of the mine. Again, on the rise they had carried out very difficult operations. It was true there was not yet quite so efficient ventilation in the mine, but in judging of the progress which had been made they must take into account the difficulties they had had to encounter. He pointed out that the bulk of the dividend mines at the present time were results of the operations of the directors, and that they had had the means to contribute money, which would have turned unproductive capital into productive capital. With regard to the financial condition of the company, there were

the resolution of the Chairman, which was put and carried.—The retiring directors, Mr. C. J. Davies and Dr. Burt, were re-elected.

Dr. Burt acknowledged his re-election, and expressed his great satisfaction with the present position and prospects of the mine.

The auditor, Mr. A. Conder, was re-elected.

A resolution was then passed authorising the directors to pay interim dividends.

Mr. E. J. Bartlett, in answer to a question, said the directors hoped to be able to declare a dividend before the Midsummer quarter.

Mr. E. J. Bartlett proposed a cordial vote of thanks to the local directors and Capt. Edwards, and bore warm testimony to the admirable manner in which they had performed their duty.

Dr. CORNWELL seconded the resolution, which was put and carried.

On the motion of Mr. WITHERS a vote of thanks was passed to the Chairman and directors, and the meeting broke up.

NEW SOUTH MERLLYN MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices, 30, Great St. Helen's, on Wednesday.

Mr. F. RUDALL in the chair.

Mr. E. J. Bartlett (the secretary) having read the notice convening the meeting read the minutes of the previous meeting, which were confirmed. The printed report and accounts were taken as read.

Mr. Bartlett then read the agent's report.

The CHAIRMAN said he was not aware that many remarks would be required from him in moving the adoption of the report and accounts, as the shareholders were in possession of all the particulars connected with the operations of the company. The most important point was that the greater part of the money spent had been found by their energetic secretary, who had shown so much faith in the mine as to advance large sums to carry on the operations, the shareholders not having responded in the manner which the directors hoped they would have done. They believed their manager to be a straightforward man, and he thoroughly believed in the prospects. There was good ground to believe that his anticipations would be realised, for at the present time he was from time to time taking out lumps of lead weighing nearly 1 cwt. each, which would certainly indicate the near approach of a valuable lode; indeed, the manager is firmly of opinion that two valuable lodes will be met with. The directors were anxious that the shares still held by the company should be taken up, so that money might be found to carry out the further explorations, hoping at the same time that very shortly the lead produced would not only pay the mining expenses but ultimately lead to dividends. But to bring this about, and to get some money at their bankers, it would be necessary that the remaining shares should be taken up. The shareholders had not been pressed for some time past, and he trusted that they would now respond to the invitation of the directors. The secretary had shown great energy in the matter, and he thought he should be supported by the shareholders. The Chairman then moved the adoption of the reports and accounts.

Mr. Bartlett said the company was, unfortunately, in the position of having to carry on its operations principally on his shoulders. Of course, the mine had taken so long to develop that he could understand some hesitation on the part of the shareholders in coming forward to help the directors and himself to carry on more extensive developments. The shareholders could hardly imagine the difficulties they had had to encounter, more especially with regard to finances, for knowing that the monthly cost sheets depended for payment on his private cheque he had been obliged to curtail the operations, and to direct the attention of the manager to the prosecution of the points which show the best indications that the returns would be sufficient to meet the costs, and so give a margin of profit. Thus their operations had been confined principally to the driving of the 80 shaft, which had been extended a considerable distance from the shaft. In the shallow levels many years ago large returns of ore were made, and it was now expected that the rise put up from the level had communicated with one of the runs of ore. It would have been noticed that Capt. Rowlands in his report expects that 5 tons of ore will be got ready soon, with only four men raising. It was most desirable that this level should be driven, but this could not be done without some support from the shareholders. There was another operation being conducted—the driving of the 100 north from the bottom of the sump. The indications were so clearly pointed out in the report from the manager that he would not further comment upon it, but he thought the financial position of the company needed some remarks. He was much obliged for the manner in which the Chairman had referred to his efforts on behalf of the company. It rested now entirely with the shareholders whether their capital should remain unproductive, or whether they would respond to the invitation to take up the 369 shares. At the meeting in January last the directors proposed that 688 shares, and it would be noticed that only 209 of these had been subscribed for. Of these the secretary had taken 209, paying the company 500l. for them. In addition to this he had advanced the company 975l. 5s. 6d., and beyond the shares he had taken up last year he had a very considerable holding in the company. So far as faith was concerned he thought the shareholders would agree with him that he had shown faith to a remarkable extent, but on the part of the shareholders generally there had been an amount of inattention to the affairs of the company. The 369 shares, at 50s. per share, would give them 922l., which would furnish the means of developing the mine properly. Considering that they had only ten men at work, he thought the results had been highly satisfactory, but he firmly believed that if the 369 shares were taken up they would soon have a return on the dormant capital, as at least double the number of men could be profitably employed at the mine. In the first week of January they received 56l. for ore sold, last week 36l. 1s., and 5 tons of ore were nearly ready for sale, which would give them about 70l. Their total expenditure would only amount to about 60l. or 65l., so that a little support would put the company in a sound position. For his own part he thought he had done quite as much as could be expected of him, and, perhaps, a little more than might reasonably have been expected. (Hear, hear.)

Mr. MASKELL seconded the motion for the adoption of the report and accounts, which was carried unanimously.

Messrs. Eastes and Rudall, the directors, and Mr. Conder, the auditor, were re-elected.

It was suggested that the shareholders should apply for as many of the shares as they could.

On the motion of Mr. MASKELL a vote of thanks was passed to the directors and secretary for their exertions during the past year, and the proceedings then terminated.

WHEEL KITTY MINING COMPANY.

A general meeting was held at the offices of the company, Austin-friars, on Thursday.—Mr. CHESTER CHESTON in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last meeting were confirmed.

The financial statement for the quarter ending September showed a credit balance of 364l. 1s. The agents' report, which was considered favourable, was read as follows:—

Jan. 29.—In the new shaft sinking under the 154 the lode is producing rich stones of tin, with appearances that indicate an early improvement. In the 154, driving east of new shaft, the lode is producing saving work for tin. In the 154, driving west of new shaft, the lode is not promising, and worth for tin 5l. per fathom. In the 154, driving west on the south branch, the lode is poor. In the 142, driving west of new shaft, the lode is worth for tin 7l. per fathom. In the 142, driving east of new shaft, the lode is worth for tin 10l. per fathom. In the 142, driving north on the counter, the lode is worth for tin 10l. per fathom. In the 130, driving west of new shaft, the lode is worth for tin 9l. per fathom. In the 65, driving west of new shaft, the lode is worth for tin 7l. per fathom.—Old Lode: In the 90, driving east of shaft, the lode is worth for tin 6l. per fathom. In the 100, driving west of old engine-shaft, the lode is worth for tin 5l. per fathom. We have sold 45 tons of tin during the three months, which will leave a small loss on the quartz working; this will be more than made up in the coming three months, and must prove a better position, without which we cannot do any good in the shape of profits. The mine continues to open out very fairly.—WM. TEAGUE, STEPHEN DAVEY, RICHARD HARRIS.

It was resolved that the accounts with the report were received and passed, and a vote of thanks to the Chairman terminated the proceedings.

PRINCE OF WALES MINING COMPANY.

A general meeting of shareholders was held at the offices, St. Michael's-alley, Cornhill, yesterday.

Mr. J. Y. WATSON, F.G.S., in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting and the minutes of the previous meeting, which were confirmed. The accounts, showing a balance of liabilities over assets amounting to 144l. 19s., were taken as read.

The agents' report was as follows:—

Feb. 1.—We beg to hand you our report for the meeting appointed to be held to-morrow (Friday). Since your last general meeting the driving of the 77 cross-cut has been extended further north, with a view of intersecting the lode in that direction, but, failing to do so, we suspended the driving of the end north, and put the men to sink the winze which was then in course of sinking below the 55, which is now down 12½ fms. below the level, leaving about 3½ fms. between the bottom of the winze and the back of the 77, and if the water was to sink at the 77, so that we could put a pair of men to rise against the winze, we calculate a communication could be effected in from five to six weeks. The 55 west has been driven since the last meeting about 12 fms., but the lode generally has been of little value, and split up into branches, but in the last fathom or two driving it is getting more settled, and in the present end is 3 ft. wide, composed of quartz, capel and mundle, and yielding good stones of ore—a strong masterly-looking lode. The 45 west has been driven since the last meeting about 11½ fms., on a lode varying in width from 1½ to 4 ft. In the present end the lode is 2½ ft. wide, composed principally of capel and mundle, but is carrying a leader of rich yellow and black copper ore, 3 in. wide, on the south part, and looks promising for improvement.—Remarks: When we commenced to sink the winze below the 55 the lode for the first 15 ft. sinking had an underlie of about 9 in. in 1 ft. south (which is about the average underlie of the lode throughout the mine), and had it continued in that direction it would, according to our dialling, have come down 3 fms. north of the 77, but it has since changed its underlie, and for the last 10 fms. sinking the underlie has been from 15 to 18 in. in 1 ft. north. This change of underlie fully accounts for our not being able to find the lode at the 77 when we expected it, but it shows the lode cut 10½ fms. in the north cross-cut to be the main lode. This lode we commenced to drive west on at the 77 before we broke the H and doorpiece ten weeks ago, which caused the engine to be idle three days and three nights, and owing to the continuous heavy rains we have not been able to fork the water to that level since. The water at the present time is 6 fms. above the back of the 77, but if we could get a week or two of dry weather we should soon be able to fork to that level, when we should be able to put a pair of men to rise against the winze, and, as said before, be able, we think, to effect a communication in five or six weeks, after which the ore ground discovered in the back and bottom of the 55 could be taken away to

good advantage, at the same time we hope to make further discoveries in the 77, 55, and 45 ends, as the lode in each end is large and promising. As soon as the winze is communicated with the 77 we should be able at once to commence stopping the back and bottom of the 55, when we calculate on being able to raise 1500 worth of ore per month, at a cost of about 2500. per month.—J. ANDREWS, JOHN PARRY.

The Chairman stated that since the last meeting of shareholders the CHAIRMAN had included the costs up to Jan. 23. They showed a balance of loss on the five months' working amounting to 9677, 5s. 4d., and a balance of liabilities over assets amounting to 1444, 19s. At the previous meeting the chief efforts were being directed to the testing of the lode at the 77, 55, and 45 fms. levels, and a winze had now been sunk 12½ fms. below the 55 fm. level, leaving about 8½ fms. to reach the 77 fm. level. The 55 fm. level had been driven about 12 fms., with a masterly lode in the present end. The 45 fm. level had been driven 11½ fms., where the lode was 2½ ft. wide, having a fine leader of yellow and black copper ore 3 in. wide. Owing to a slight accident to the machinery some weeks ago, and the continuous floods, the water rose 6 fms. above the 77, but when the weather changes so that the water can be got out, the communication between the 55 and 77 fm. levels could be effected in about six weeks, and the ore ground laid open in the 22 fm. level between the 55 and 77 fm. levels. This ground, the agent thinks, would yield about 1500 in copper ore, and the costs of the mine, including the driving of the three promising ends, would be about 2500. He thought this recommendation should be carried, and that the other operations should be restricted as far as they possibly could for the present. The Chairman then moved the reception and adoption of the report and accounts.

Mr. ROSEWARNE seconded the motion.

After a short conversation on the future working of the mine, the reports and accounts were adopted, and a call of 2s. 6d. per share was made.

It was also decided that all costs at the mine should be reduced as much as possible, and that the operations should for the present be confined to effecting the communication between the 55 and the 77, and the driving of the 55.

A vote of thanks to the Chairman closed the meeting.

WEST WHEEL ELIZA.—At the half-yearly meeting on Wednesday (Mr. Stephen Barker in the chair) the balance sheet to Dec. 31 showed cash at bankers, 1231, 8s. 4d.; to meet the tradesmen's accounts, 1113, 13s. 10d. A call of 3s. per share was made. Capt. R. H. Williams reported upon the various points of operation. The strata in the shaft indicate mineral in the lodes, and he hopes shortly to have a few tons of tin for sale.

[For remainder of Meetings see to-day's Supplement.]

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers), 43 and 43A, Palmerston Buildings, Old Broad-street, write to us as follows:—

SILVER MOUNTAIN MINES—EXCHEQUER, I.X.L., ISABELLE, & Co. (No. XV).—The region surrounding this "mighty peak" of the Sierra Nevada is the wildest of any portion of the Golden State. On leaving Aurora by the Sonora Pass, at a distance of about 10 or 12 miles, there are several places where, at a recent date, there have been extensive hot springs, which have had a powerful action on the surrounding rocks, but which are now extinct. The "Meadows" on Walker's River, through which the road passes, is a basin, quite level, and surrounded by mountains—it is from 6 to 8 miles long and 3 or 4 miles wide. The Meadows to the summit of the pass is estimated at 26 miles, and two considerable branches of Walker's river are crossed on the road. Between these two there is a copious thermal spring, the water of which is nearly at a boiling temperature, and slightly saline. Granite and lava form the predominating rocks. The altitude of the Meadows is about 6500 ft. The second fork of Walker's river is 36 miles from Aurora, and where the road crosses it there is a basin which has evidently once been a lake. The Sonora Pass has two summits, the eastern forming the watershed, and being 9667 ft. above the sea; the western one is higher, its altitude being 10,115 ft. All about the eastern summit the granitic rocks, which from the mass of the mountains are covered with beds of lava, which has flowed out in sheets over the uneven and irregularly denuded surface of the granite, and both lava and granite have undergone considerable erosion since the former was emptied, so that the volcanic materials lie in irregular and uneven masses. No craters are observable here, and it appears that the lava has issued from fissures in the granite, forming dykes.

About 14 miles from Sonora is the "Sugar Pine District," where are valuable and important mines of auriferous quartz in the granite. The rock along the lower part of the trail towards Sonora becomes softer, and by its decomposition furnishes a redder soil than derived from the harder granite further up in the mountains—it bears gold, and placer diggings are extensively distributed over it.

In continuing the account of our journey over the Sierra, we come next to the region about the head of the Mokelumne, to reach which we follow up the road from Murphy's, by the Calaveras group of Big Trees to Silver Mountain, which is not only the name of one of the higher peaks of the range, but is also that of a mining town, where there is a considerable prospecting for silver deposits. A good wagon-road is traversed from the Big Trees across to the town of Silver Mountain, connecting with the mining districts of Aurora and Virginia City. The region about Silver Mountain was formerly included within the counties of Amador and Calaveras, there being some uncertainty in regard to its real position with reference to the county lines; it has since been set off as a separate organisation, and called Alpine County. The road to Silver Mountain passes through the famous grove of the Big Trees of Calaveras County, which is one chiefly visited by tourists, on account of its proximity to the settled part of the State, and because there are good accommodations for travellers, which is not the case at any other locality where these trees are growing. The Big Trees are, indeed, amongst the greatest wonders of California, and require no exaggeration to make them attractive.

ISABELLE (Gold and Silver).—The experts who have inspected the network of gold and silver veins comprised within the extensive property this company is now engaged in developing agree that while the Mother Lode yields both of the precious metals some of the subsidiary veins are likely to prove rich in gold alone. This is based upon the fact that although in a silver-producing region, and parallel to Exchequer, the outcroppings are as unique in massive boldness as in the high percentage of gold found in the quartz, which is mineralised throughout. The immense wealth of the silver mines has caused us to overlook, to a great extent, the equally rich gold mines in the surrounding district—the pioneer in the production of the vast mineral wealth which has astonished the world for the last quarter of a century. One reason we know so little comparatively about them is that only a few of the gold mines are held by public companies, and of those, with two or three exceptions, we hear little. The men who mostly own and work them are well enough satisfied with the harvest they reap. Men may be found by hundreds all through California who are quietly at work boring into the mountains and laying bare the pre-historic river beds, rich with the golden treasure deposited there millions of years ago. And all this is in its infancy. The mere scratching of the surface that was done in the period of placer mining is nothing, and those who thought that the mines were played out—as was the opinion of even many miners in 1853—had a very mistaken notion of the character of mineral deposits.

Why, the little county of Cornwall, with its area of only 1000 square miles, was mining for tin 3000 years ago, and is still working her tin mines. In California alone there are 188,981 square miles, and undoubtedly the richest mineral country in the world. Who can in face of such a showing doubt what the future will bring forth? Does anyone pretend that in the short space of 25 years a vast territory such as we have here can even be scratched, to say nothing of exploring it? Or can we hesitate to believe that developments will continue to be made fully equal and more numerous than anything that has hitherto been discovered? If Cornwall can run her mines 3000 years California can hers 3,000,000 years, taking into account the different areas of the two places.

Years ago, according to those who have a constitutional partiality for croaking, California and Nevada were about denuded of the precious metals, yet now they seem no nearer "petering" out than ever, and they are yielding undiminished wealth, as they no doubt will be ages hence. The fact must not be lost sight of that the Comstock Lode after all occupies but a very small part of Nevada, and that there are other districts which are quite as likely to disclose hidden wealth when equally developed. Day after day new developments are being made, new locations placed, and fresh wealth uncovered. The only limit to the mining industry is the limit of capital—put in plenty of capital and the wheels will run not only smoothly but rapidly, and a large and quick return must accrue. The change in the mode of managing mines, and the mutual confidence between managers and shareholders, will do still more—in-

deed, nothing more than this should encourage capitalists to forward to promote legitimate mining as a bona fide industry, thus assuring success in its greatest magnitude.

Nevada, the silver State, is pouring out daily \$125,000 in silver, \$75,000 in gold, \$8000 in lead, and \$2000 in other metals, making a yield of \$210,000 daily, or \$63,000,000 per annum; and California, the gold State, is producing daily about \$10,000 in gold, \$10,000 in silver, \$6000 in quicksilver, \$5000 in lead and copper, \$2000 in coal, and fully \$5000 in iron, antimony, zinc, and other minerals. Its total yield is, therefore, \$73,000, corresponding to annual product from its mines of \$23,500,000.

The Mother Lode, at Isabelle, is the champion vein of this famous Silver Mountain district; and, like its parallel lode at the Exchequer, will, no doubt, yield in depth an increasing percentage of gold, in addition to silver; but some of the side veins, for the reasons already stated, seem likely to prove richly auriferous. The special features with reference to Isabelle is that, situated in the bed of the Scandinavian Canyon, results can be realised daily and inexpensively, developing the respective lodes at depths—considerable ones that cannot be easily over-valued.

EXCHEQUER (Gold and Silver).—The latest official advices state that the 400 is in 71 ft. from cross-cut, and that there is a bearing seam of very rich ruby silver ore on the footwall. All the look well: 55 car loads of ore were sent to surface during the week. Two teams are now making their regular trips daily to the battery with ore. Advices a few days later than the above state that the battery was well on to completion, and three weeks from that date the manager thought the mill would be running, as soon as he got quicksilver, salt, and the necessary workmen.

I.X.L. (Gold and Silver).—The official advices state that the drift is in 396 ft. from cross-cut at the 200. The drain tunnel 90 ft.; 30 car loads of ore were sent to surface during the week. The rise is up 70 ft. Mill finished with the exception of the pump and some piping.

FLAGSTAFF (Silver).—It may not be generally known to the shareholders that their property is situated in Little Cottonwood Canyon, some 14 miles south of Salt Lake City, and in the high portion of the Wasatch range, about 9000 to 11,000 ft. above level. Little Cottonwood Canyon is a deep gorge 15 miles long. Big Cottonwood Canyon splits itself into several forks, and is main over 20 miles long. The lower part of the Cottonwood through a grand mass of granite, extending northerly, with an area of 2000 ft., and easterly for over 10 miles; this granite rises and above a mass of schist and crystalline rocks. Proceeding ward up the canyon, we observe a mass of coarse-grained porphyritic rock, containing quartz veins, with galena, silver, and molybdenum. Overlying this granite we observe a mass of schist in thickness, dipping first east-north-east, and then by Emma, gradually north. Above the schist we observe about 300 ft. of crystalline lime, then 250 ft. quartzite or metamorphic sand, then 40 ft. schist, and above this 1500 to 1800 ft. of Silurian. In this time belt appear the Flagstaff, the Emma, and many other mines.

Passing along the wagon-road from Alta to the Emma Mine, we observe another mass of granite, which fact, taken together with the other masses of granite should indicate beyond dispute that the ore-beds shows that they were found subsequent to the upheaval by ascension from below. As we descend we observe action of the igneous rocks, for frequently trap-dykes, traversing lower beds. We find in association with these dykes large dykes of ferruginous ores. Some of these dykes seem to be of granitic origin, changing gradually to the porphyritic character, and disappear after a short distance in the lime and the quartzite. ore deposits are all of a more recent origin than the dykes, and are more or less in connection with the same. Sometimes porphyritic action has removed the porphyry and replaced the with ore, so that it seems the formation of ore deposits was secondary effect of the igneous eruptions, the strike of the deposits being in most cases in conformity with the course of the dykes and granites.

The official circular has confirmed the information we published last week. The company is in possession of the mine, "which all hands admitted to be in fine condition, producing 60 tons of first-class ore daily, and capable of returning on the present scale of working a profit of 45,000l. per annum." The mine is in full blast, and, as an illustration of its value, it may be mentioned that the company has received an offer of \$1000 daily rent for 12 months, and the manager has no doubt that offer would be doubled. It showed a disposition to entertain it—which, of course, he declined, both because he is confident of increasing the daily production, and also because such a tenant would not consider the progressive development of the mine. The success of the directors in their efforts to oust Mr. Davis, and in their denial of his claim, is unquestionably complete. Every liability of the company here has been provided for. The latest advices state that the mine continues to develop most satisfactorily.

CHICAGO (Silver).—The Salt Lake Tribune has the following:—"The Chicago Silver Mining Company (Limited), of London, deserves something more than a passing notice. It has been one of our misfortunes to have English capitalists invest in our mines. They purchased our very best and producing mining properties, properties that were yielding very large amounts of gold ore, and by their ignorance of the business, the incompetency of their sent here as managers, their neglect of their most important duties, their want of enterprise and waste, that no business could possibly survive, and have ruined their mines, and brought odium and disgrace upon these valuable investments. With this explanation it gives us pleasure to refer to the Chicago Silver Mining Company, one of the cheapest properties purchased by English companies, and most successful. The capital stock of this company is 150,000l., divided into 150,000 shares, and there has been paid in dividends \$177,000, and their present cost is better than it has ever been before. It is all explained in the management of Mr. Golbe has given to the purchase development, and economical expenditure of money in every department, and the pursuing of a careful and upright policy of dealing."

The company's smelting-works are the most successful of any kind in the Territory. It is complete in point of machinery, all the modern improvements, ably managed by Mr. W. S. Galt, and conducted during the past year with enterprise. Out of 100 tons of ore and those of the Queen of the Hills 240 car-loads of bullion, of the average value of \$2000 per car, have been produced. The report for the 11 months ending Nov. 30, 1876, shows that the duce to be 4,778,691 lbs. lead, 232,672 ozs. silver, and 580½ ozs. gold. The estimate for the 12 months would raise the product to 227½ lead, 254,815 ozs. silver, and 643 ozs. gold. The company has also paid dividends amounting to 24. 8s. per share.

BLUE TENT HYDRAULIC GOLD (No. VI).—Last week we referred to those picturesque and remarkable formations known as Table Mountains. It is absolutely incredible the amount of dust that has been taken from some of the claims under these Table Mountains; from a superficial area of 10 feet square as much as 100,000 has been washed out, and it was no unusual thing to find a pint of gravel to yield 1 lb. of gold. There are many well authenticated instances of \$1000 having been taken from a single bar of dirt gathered at the intersection of a branch or tributary to the main channel, a single linear foot across a chain having at especially enriched points turned out as much as \$5000. The tunnel run was in 1854; it proved a great success, the claim was covered their channels having paid largely for a series of years. Much was extracted has never been ascertained, most miners have averse to giving exact information when they are doing remarkably well. The New York Company, owing 2400 ft. on the channel, has extracted over \$1,000,000, the ground having paid at the rate of \$1000 to each longitudinal foot, aggregating \$2,400,000 for the claim. The Rough and Ready has a record not very different; they are many others owning and operating claims all known to have been remarkably well. The receipts of the Bald Mountain Company, not yet one quarter worked out, have amounted to \$900,000 two-thirds of it net profit. The Yankee Company has made a net extraction of \$1,000,000, of which \$600,000 have been disbursed in dividends. The tunnels first run averaged 1000 ft. in length, at cost at the rate of about \$16 per linear foot, their common size being 6 by 4 ft., with a grade of 1 ft. to the 100. With the aid of gun powder and machine drills, expediting and cheapening the driving of these adits, the expenditure has been greatly diminished. The mistake of running the tunnels too high is not likely to occur here.

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

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rate of lime, unproductive for lead ore. In the 130, east of Lewis's winze the lode is 5 ft. wide, yielding small branches of lead ore—saving work for dressing to a low quality. In Pearce's winze, sinking under the 116, the lode is 10 ft. wide, yielding saving work for dressing, and looking more promising. In the 120, west of crosscut, the lode is 8 ft. wide, the ore is 10 ft. thick, and yielding from 7 to 8 cwt. of lead ore per ton of limestone. In the 110, the lode is 10 ft. wide, yielding 10 to 12 cwt. of lead ore per ton of limestone. The improvement. The tribute patches through the different levels of the mine are of change worthy of remark. Our machinery is in good working order, and the dressing and preparing with all regularity preparing ore for our next bit of work.

EAST VAN.—Wm. Williams, Jan. 31: The cross-cut from bottom of the
has been driven north 4 fms. 3 ft.; no lead has been seen as yet. The rise in
of cross cut A is up 4 fms. 2 ft.; still in pretty good hole for lead. We are
ing on the 25 west towards Van, cutting spots of lead, but not sufficient to

EAST WHEAL LOVELL.—Richard Quentrell, Jan. 31: Fatwork : Westward from the old shaft, 117, 120 fathoms, driving the new shaft below the 117, and lengthening westward ; the lode is from 5 ft. wide, containing a little tin.—Tregonebris : The lode in the adit end was been rather disordered by a cross-branch, but it is again improving, and yielding some good stones of tin. The lode in bottom of the adit on which we are working is looking very well, worth 12% per fathom.

FRANK MILLS James Rowe, N. Addams, Feb. 1: The lode in the 10, 11 and 12 ft. level is producing 6 cwt. of lead ore per fathom, and presenting a promising appearance. Preparations are now being made to sink a shaft to the bottom of this level in a good lode. No. 1 stopes in the back of the level is producing 8 cwt. of lead ore per fathom. In the No. 2 stopes the lode is producing 5 cwt. of lead ore per fathom. The lode in the 72 ft. level, north of east cross cut, is producing 7 cwt. of lead ore per fathom, and presenting a little promise. The lode in the 60 ft. level, north of east cross cut, is producing 7 cwt. of lead ore per fathom. The lode in the 48 ft. level, north of east cross cut, is producing 7 cwt. of lead ore per fathom. We have just intersected the lode in the cross cut, west of boundary line, producing good stones of lead. The stope in the back of the 60, north of east cross cut, is producing 7 cwt. of lead ore per fathom. The stope in the 45, south of east cross cut north of orchard shaft on east branches, is producing 7 cwt. of lead ore per fathom. We have completed the erection of six of the improved plunger jiggers, and are getting on with two more as fast as possible. We have completed we shall be able to treat a large quantity of stuff easily. Trial

GLENROY.—R. Rowe, Jan. 30: Upon return from the mine and underground, I am unable to report any special change. The cross cut in the 90 ft. driven about 3 fms., and the ground is very hard. We expect to have to dig between 5 and 6 fms. before reaching the lode. We have some alterations to make in the pumping lift, and a lodge or flat to rent at the 80 ft. (there, not, however,

work can commence to sink the shaft, which work is now in hand. The distance from the shore to the shaft is 100 yds. The shaft is 10 ft. in diameter and 50 ft. level going off in the side, we have in the former a hole about 10 ft. wide, mixed throughout with blende; in the latter, the end has come away, and is altogether disordered. Still, all the stuff, slide and hole, has been saved for the washings. We are anxious to see what the hole is likely to be on the north side of the slide in new ground. I do not see any alteration in the stuff, they are still good for blende. The 25 cross-cut east is in about 9 ft., and contains no water; the first hole should be intersected in about 10 ft.

GLYN.—J. Roach, Jan. 29: The engine shaft is now 10½ fms. under the surface; the men will complete their contract (12 fms.) on or about the 15th of Feb.; underlie of the lode is much less than usual, and yielding occasional small lead. I, therefore, expect great improvement when we drive out the next 10 fms. There is no change in the 25 driving south-west; the ground is hard for

GOGINAN AND LEVEL NEWYDD.—Jan. 30: Bryn Pica shaft is being driven below the 120 with full force, and very fair progress is being made. At the east of western shaft, the lode has been cut open to the north 19 ft., which contains a good mixture of lead ore, but the north wall has not yet been reached. The same level west is being continued in a large lode, and the portion cut is producing good saving work. In the 120, east of western shaft, the portion

lode carried has fallen off in its value, and now yielding good saving work, hope will soon improve again. The lode in the same level, west of Bryn Pity, is still disordered, and the ground rather soft, but contains a little ore. In the level over the 120 west there is a strong lode, worth $1\frac{1}{2}$ ton of ore per fathom; in the winze sinking from the 110 against the same it is worth 1 ton of ore per fathom.

These points we expect to be confirmed in about a week. The tribute to the "old" is paid in the form of a new record, an average of one per cent of the total production. The price of the old is 115, 118, per ton. All things are being pushed on with the utmost vigour, but the continued heavy and stormy weather makes much against such work.

GREAT DYLLIFFE.—Edward Rogers, Jan. 31: Dylliffe Lode: At the 14 ft. of the engine shaft, there are six men stripping, at 4 ft. 10s. per fathom. There is 5 ft. wide, and is worth 12s. per fathom. At this level west we are stripping by six men, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 12 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 10 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 8 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 6 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 4 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 2 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom. At the 0 ft. level, there are six men stripping, at 4 ft. 10s. per fathom. The lode is worth 16s. per fathom.

is a large fish to go down in the bottom of the 120 for a considerable time. It is most likely, therefore, that these two levels will open up profitable and enable us to set several pitches at a profit as soon as there is a commotion made to the winze now sinking in the said level. The winze at the 120 is done by two men, at 6¢. 10s. per fathom, and will be down its required depth before it is extended far enough east to reach it. The hole is mostly pitch-

as well as

GREAT LAXEY.—W. H. Rowe, Jan. 30: The sinking of the Welsh shaft at the 235 ft. level has now been fairly resumed, an sufficient space is below

ated at the same time for a lodge; at this point there is a branch of ore 250' per fm. An important improvement has taken place in the 235' and No. 25 shaft; the lode at present is worth 60¢ per fathom. As the end is not far as far as the first vein below the 240' and not yet holed, and the fact of this being the best ore here, the 240' will be holed in a few days. The 245' and No. 246 of the lode; this will be proved in a few days. The 255, north and south No. 2, winze, continues opening out ground worth 1.00' per fathom. In the north there is a slight improvement for blende. Since last report a "honey wedge of rock, has formed in the lode in the 210' end north, interfering, were only imperceptibly, with the productiveness of the lode, from the fact that the rock is not so thick as the lode, this is continued in the 220' and 230' cross cut continues without change. There is a large lode in the 260' end but at present, so far as can be seen, poor. The stopes in this part of the mine are now poorer than for some time past.—Daniels: With the exception

FATHER STRONG GRABED A STONE IN THE BOTTOM LEAVE, DRIVING SOUTH, THEREBY
 HURTLING THE TWO MEN TO THE GROUND. THE FIRST OF THE TWO MEN WAS OPENING
 HIS EYES, AND HE SAW THE OTHER MAN'S HEAD AND SHOULDERS. HE WAS OPENING
 HIS MOUTH, BUT HE COULD NOT SPEAK. CUTTING SOUTH, THE OTHER MAN'S
 HEAD WAS WORTH 70¢ PER FATHOM. THE 110 END NORTH IS STILL OPENING UPON A
 LEAVE LODE, WORTH 30¢ PER FATHOM. THE STONES IN THE ROOF AND SLOPE OF THIS LEAVE
 TIME GOOD, AND WORTH ABOUT 20¢ AND 80¢ PER FATHOM RESPECTIVELY.

GREEN HURTH.—Wm. Vipond, Jan. 25: I think we have cut No. 3 correct
 in the end of east and west vein last night; it does not appear to make any
 improvement in the one we are driving on, and we see no ore yet in No. 3. It
 appears filled with soft, lumpy red stuff, and there are some sparse iron
 pyrites in the oxide of iron in No. 3. In the end south on No. 2 we are still
 in the same vein, and the ore is the same, but the dip is more easterly.

of them are yielding anything to value. The stope on No. 2 cross vein at branch are yielding about as usual. The stope on the branch west from Salinas are yielding about as usual; this is the best working we have. We are getting work from where we are clearing up to begin working the north end. We delivered 21 tons 12 cwt. of lead ore at Alston Station since the 16th, and we have done more but for the frequent stoppages caused by frost and snow; this is, however, speedily removed by rain, and is now the only impediment to

HILGSTON DOWN CONSOLS.—J. Richards, Feb. 1: Although heavy rain has fallen during the past week the water is forking in the shaft, and in one week it is hoped the 150 will be sufficiently drained to admit of resuming work in this level. The 140 cross-cut is still continued for intersection of south part of the lode. The 110 west, on the south part of the lode, continues 25 ft. further and is yielding 4 tons of ore, worth 15¢ per fathom. In the slope to the 140 the 120 west the lode is worth 6 tons, or 18¢ per fathom. In Chyngoworth the

the back of the 140 west, the lole is looking well, and yields 6 tons or more
30f. per fathom. The pitches are looking about the same as when last we
upon. The sampling of ores for sale on the 22d inst. will be 280 tons.
The 90 west, the 70 west, and the 50 west, all look better than they did
12 men, and we hope during the ensuing month to make good progress.
are favoured with better weather. In clearing the 60 west of the engine shaft
find the lole heaved south some 5 fms. by a small branch; we have now
the level going south to the level on the western side, which level we expect
to clear in the course of a few days, when we shall commence to open up

good stops of lead which has a very kindly appearance. The 40 is set to east of Wall's shaft, by six men, at $5\frac{1}{2}$ per fathom; the lode is worth 27 lbs. —Stopping: Nos. 1 and 2 stops in the back of the 69, west of shaft, by eight men, worth 18¢ per fathom each. Nos. 3 and 4 stops in the back of the 69, west of shaft, by ten men, worth 23¢ per fathom on an average. Nos. 5 and 6 stops in the back of the 69, west of Wall's shaft, by six men, worth 22¢ per fathom each. We have five stops in the back of the 60, east of Wall's shaft, by

worth on an average 26th fathom. We have six stipes in the back of the 26th fathom of Wall's shaft, by 26 men, worth on an average 22th per fathom. We have six stipes in the back of the 59th, west of Wall's shaft, by 26 men, worth on an average 20th per fathom. A stipe in the bottom of the 40th, east of Wall's shaft, by 16 men, is worth 17th, 19th, per fathom. Nos. 1 and 2 stipes in the back of the 40th of Wall's shaft, by four men, is worth on an average 18th per fathom. A stipe in the back of the 35th, west of Wall's shaft, by two men, is worth 17th, per fathom. The average here paid for stiping is about 6th, per man, for resine. In comparison

I would remark that the mine continues to look well; we have now received timber for the erection of poppet heads, and laying down skip road in Bray's which we shall commence about at once. By the end of the casing muck shall be getting near the 70, which will open up also the 70 on the Plan hole, where we expect to find a good lode for aractinal mundic and copper. All our machinery is working well, and we are making good progress with surface operations. We have between 700 and 8 0 tons of mundic on the surface, and 100 tons of copper ore in the north.

KINGSTON.—J. Chynoweth, Feb. 1: Spare progress has been made in the 16 tract by reason of the lode being very hard and large, fully 8 ft. wide.

proving again, and, I expect, will almost immediately resume its former productivity. We commenced to sink a new shaft in the eastern part of the property and a few fathoms in advance of the adit level end, but had to suspend the same on account of so much surface water; this, however, will be resumed as soon as a little dry weather sets in, and I would also suggest that the sinking of the main

Unfortunately these affidavits could not be used at the trial. The secretary remarks that it is a matter of vital importance to the company that no such affidavits should exist in the hands of the shareholders or of the public. The market for Hydraulic or Gold-Washing Shares has been quiet, and prices do not show any alteration. Information from California confirms the fact that this season hitherto has been the driest in the local papers that the miners are, nevertheless, expecting an average rainfall. Blue Tent, 3 to 3½; operations here are proceeding as usual, and as the rains have commenced it is anticipated that the manager has been enabled to clean up with a full head of steam. Sweetland Creek, ½ to ¾; the special meeting on Thursday evening, the directors to dispose of the property for the best obtainable, and decided that a telegram should be sent to Mr. McLean, the manager, offering him the entire concern on certain terms, and requesting the board to call a meeting to wind up the concern, and appoint liquidators. Cedar Creek, ½ to ¾; a telegram from the agent, Colonel Ludlum, states that the whole of the shares are washing. This is encouraging news, as great hopes are entertained as to the probable results of this season's washing. Onyon, preference, 4 to 4½; the latest news from the mines show that the agent was able to do a small amount of washing. The shares were all in good order, and would start up directly the rains set in.

The shares in lead mines are without change. Van, 35 to 37; the various operations, both underground and at surface, are proceeding as usual, and there is no change reported. The four-weekly sales take place next Thursday, 500 tons of lead and 150 tons of blende. Grogwinion, 5½ to 6, cum div. and cum new shares; the half-yearly meeting was held on Wednesday, and a dividend at the rate of 20 per cent. was declared. It was also resolved to issue the 2000 shares held in reserve, to provide funds for developing the eastern portion of the mine, which is believed to be likely to prove as rich as the portion now yielding such satisfactory returns. During the half-year 600 tons of lead have been sold for \$9200, and it was stated at the meeting that these returns would be by-and-by satisfactorily increased, and that consequently larger dividends may be expected. Wye Valley, 5½ to 6½; the slopes continue to yield a large quantity of ore, and are valued at about 7 tons per fathom. The 22 has passed through several branches of ore, and it is expected to cut into the main ore-producing part of the lode at an early date. The lode is some 70 ft. in width, and bids fair to produce further enormous deposits of lead at this and the deeper levels. The new shaft is also being sunk in a very fine lode, and some rich ore ground has been laid open in the eastern end of the adit, which will greatly add to the reserves of the mine. West Wye Valley, 3½ to 4; the lode at the 40 east is rich for copper and lead, an excellent indication for great deposits of the latter mineral. The 26 east has been communicated with Brooke's shaft, and the mine is now perfectly ventilated; the shaft is going down in a rich course of ore, and the prospects are considered good. St. Harmon, 3½ to 3¾; the lode has very much improved, and is yielding both lead and blende. It is intended to forthwith cross-cut the lode to its full width, and thus prove its value. The 35 slope has much improved. Several large shareholders visited the mine last week, and expressed satisfaction at its prospects, and the progress made.

Pennery, 3 to 3½; the lode in the 130 east is 1 ft. wide, worth 1 ton of lead ore per fathom. There is a good deal of water issuing from the end of the south cross-cut, and the ground contains a little lead occasionally. The winze below the 120 east is worth 15½ per fathom. The 80 west is worth 1 ton per fathom. Other parts of the mine without change. West Asheton, 1½ to 1¾; Asheton, 1½ to 1¾. Pateley Bridge, 2½ to 3; the Rake vein, in the 30 going east, is increasing in value, and from appearances, the agent is of opinion that he is close to a rich course of lead gone down in the level above. The end going west is also presenting most encouraging features, in every way identical with the rich bed of ore passed through in the shaft. The Sun vein, east from Gillfield level, is improving. Other parts of the mine unchanged. West Pateley Bridge, 5 to 5½; the Craven cross-vein, in the 56, has improved within the last few days. The lode in the level west from No. 2 shaft is worth 1 ton of lead ore per fathom. The cross-cut north, towards North Rake vein, is making good progress. The agent also reports that he has commenced dressing.

East Black Craig, 5½ to 6½; the directors have just paid a dividend of 10 per cent., and the mine is reported to be looking very encouraging, and opening out well. The machinery and working plant have been largely increased, and the property is altogether being developed on a much more extended scale than by the old workers. There is considered to be every prospect of their continuing to pay good dividends, the general opinion being that the mine, which made great profits in olden times, is likely again to prove highly remunerative.

Subjoined are the closing quotations:—
Asheton, 1½ to 1¾; Carn Brea, 36 to 38; Devon Great Consols, 3½ to 4½; Dolmuth, 36 to 38; East Caradon, 1 to 1½; East Van, 6½ to 7½; Glynn, 2 to 2½; Great Lacey, 20 to 22; Great West Van, 3½ to 5½; Hingston Down, 3½ to 4½; Leadhills, 6½ to 8½; Marley Valley, 3½ to 4½; Marley Mountain, 1½ to 2½; Pateley Bridge, 2½ to 3½; Pennery, 3 to 3½; Penzance, 1½ to 2½; Roman Gravel, 1½ to 2½; Tankerville, 8½ to 9½; Tincroft, 15 to 20; Van, 36 to 38; Van Consols, 2 to 2½; West Asheton, 1½ to 1¾; West Basset, 4 to 5; West Chiverton, 15 to 18; West Tankerville, 1½ to 2; West Pateley Bridge, 5 to 5½; Wheel Croft, 2½ to 3; Wheel Grenville, 3½ to 5½; Almaden, 16 to 17½; Argentine, 8½ to 9½; Birdseye Creek, 3½ to 4½; Cape Copper, 30 to 41; Cedar Creek, 3½ to 4½; Chantale, 4 to 5½; Colorado Terrible Lode, 1 to 1½; Condes of Chili, 4½ to 5½; Don Pedro, 2½ to 3½; Eberhard, 10 to 10½; Emma, 1½ to 2½; Exchequer, 1½ to 2½; L.X.L., 3½ to 4½; Flagstaff, 2½ to 3½; Fremont, 1½ to 2½; Glyn, 2 to 2½; Javal, 3½ to 4½; Kapanga, 3½ to 4½; Last Chance, 1½ to 2½; Malpas, 3½ to 4½; Malabar, 3½ to 4½; New Quebrada, 3½ to 4½; New Pacific, 1½ to 2½; Pestancia, 3½ to 4½; Pumas Eureka, 2½ to 3½; Rise, 3½ to 4½; Richmond Consolidated, 6½ to 8½; San Pedro, 3½ to 4½; St. John del Rey, 320 to 340; Sierra Buttes, 1½ to 1¾; South Aurora, 3½ to 4½; Sweetland Creek, ½ to ¾; Teconia, 3½ to 4½; United Mexican, 2½ to 2¾; Blue Tent, 2½ to 3½; Wye Valley (pref.), 4 to 4½.

COLLIERIES.—Business on the market for colliery shares has during the past month been a little more active than previously, this no doubt being to some extent caused by the improved nature of the reports of trade in the various coal and iron centres. At Barrow especially the iron makers are full up with orders for some time to come. In South Wales, too, there are many large orders for steel in the market, and no doubt this will advantageously affect the Ebbw Vale, Panteg, and other works in the district. The coal trade is very brisk, especially in South Wales and the Lancashire districts, though no rise in price is at present noticeable. Considering, however, the mildness of the winter the present aspect of the trade may be deemed satisfactory. The Chapel House new pit is now down 381½ yards, having been sunk 4½ yards during the past week. The hard bar of ground lately reported as being cut is not yet passed through, but will be in the course of a day or two, after which better progress will be made. The celebrated "Park" vein of coal may be expected to be cut any day after the depth of 380 yards becomes reached, which should be in little over a week; shares close at 3 to 3½; Llay without meeting with much response from buyers, and the shares consequently close flat at 3½ to 4; Bilson and Crump Meadow shares are slightly flatter, some little disappointment being naturally felt regarding the failure of the amalgamation scheme, the difficulties of which, however, it is hoped may be surmounted. Cardiff and Swansea shares close at 1½ to 2½; Cakenmore, 2½ to 3; New Shari at slightly lower quotations, and close the week at 1½ to 2; Cannon and Huntingwood, 1½ to 1¾; Aldridge, 24 to 25; Harstead, 9 to 9½; Lly House and Northwood, 11 to 12; Mid-Cannock, 25 to 26; new shares (100 paid), 13 to 14; Pelsall, 8 to 9; Sandwell Park, 22½ to 23; South Cannock, 7 to 7½; Spon Lane, 3 to 4; and West Cannock new shares 14 to 15.

HALIFAX.—Feb. 2: The following quotations are from Mr. J. H. Thackrah's list:—Halifax and Huddersfield Union Bank, 9½; Halifax Joint-Stock Bank, 3½; Halifax Commercial Bank, 24½ ex div.; London and Yorkshire Bank, 23s. 6d.; A. 14; ditto B. 5; Ripon and Wharfedale, 10½; Bradford Brick and Tile, 22s. 6d.; Norton Brothers, 7; Heckmondwike Manufacturing Company, 4; Goole Steam Shipping Company, 11.

At Swansea Ticketing, on Tuesday, 2014 tons of copper ore were sold, realising 17,163.18s. 0d. The particulars of the sale were:—Average standard for 9 per cent. produce, 95.7, 7s. 4d.; average produce, 11.11-16; average price per ton, 8s. 10s. 6d.; quantity of fine copper, 235 tons 8 cwt. The following are the particulars of two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Jan. 16	105	4	95 10 4	13 5	219 1 1	14 7½
17	204	4	95 10 4	13 5	219 1 1	14 7½

Compared with the last sale, the advance has been in the standard 11s., and in the price per ton of ore about 1s. 2d. The Cape ores gave an average produce of 3½, and sold at an average of 23.8s. 11d per

ton, or 15s. 2½d. per unit of fine copper, the standard realised being about 17.7s. 6d. better than that for the whole sale. On Feb. 13 there will be offered for sale 2056 tons, from Betts Cove, the Cape, Union, Berehaven, Norway, and elsewhere.

At Redruth Ticketing, on Thursday, 1224 tons of copper ore were sold, realising 6272.18s. 6d. The particulars of the sale were:—Average standard, 95.19s.; average produce, 7½; average price per ton, 5.2s. 6d.; quantity of fine copper, 96 tons 9 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Jan. 4	1439	0	103 0 0	7	24 9 0	12s. 8½d.
18	3698	104	10 0	6½	4 1 6	12 5½
Feb. 1	1224	99	19 0	7½	5 2 6	13 0

Compared with the last sale, the advance has been in the standard 2.10s., and in the price per ton of ore about 4s. There will be no sales on Feb. 8 or Feb. 15.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Forced Sales of Copper; Outlines of Geology—No. 1; Review of Mr. J. A. Morgan's Article on the Origin of Metals (J. H. Morton); Combustion of Coal Cargoes (A. Vassard); Steam Boilers of the Royal Navy (W. Tregay); Foreign Loans, and Home Mining (R. Tredinnick); the Flagstaff Mining Company (W. C. Vincent); Richmond Mining Company; Science in its Application to Mining (R. Knapp); Drake Walls Mine, and its New Management (T. Gregory); Mining on Halkin Mountain, Flintshire; Mining in Flintshire—Bodidris Mine; Cardiganshire Mines, A.D. 1877; South Condarrow—Wheal Grenville; Wheal Grenville (J. Watson); East Lovell Mine (E. J. Bartlett); St. Agnes Mining District (R. Symons); the Murchison Testimonial—Mining Explosives—Mining as an Investment—Foreign Mining and Metallurgy—Ironmaking in the Central Presidency—Ironmaking by Private Enterprise in India—Meetings of New Quebrada, Hornachos, Port Phillip, Victoria (London), Penzance, New Consols, Grogwinion, Wheal Eliza, Belstone, Medlyn Moor, Llanidloes, West Goginan, and New Chiverton Companies, &c.

PLYMOUTH.—The 24 east has improved to 1½ ton of lead ore per fathom. There will be 20 tons sampled on Tuesday.

NORTH LACEY.—The sinking of the shaft below the 136 has been resumed; the lode in the south end producing good stones of lead ore, with every appearance of a valuable improvement. The slopes, &c., continue productive, as of late.

HOLMBUSH.—We observe that this mine has now entered the Dividend List with a distribution of 6d. per 12 share, and the directors' report informs the shareholders that they may expect still better results in future. We hope for the sake of home enterprise that this will come to pass.

DERWENT.—The operations are being pushed on upon an extensive scale. There are five slopes in back of the 95, east of Jefferies shaft, worth 23, 18, 12, 20, and 14 cwt. per fathom. At two points in the 93 west they are stripping down the lode, worth 12 and 16 cwt. per fathom, and the three slopes in this level are worth 18, 22, and 15 cwt. per fathom. At Westgarth's the 74 west is worth 6 cwt. and the slopes 12 cwt. per fathom. The various drivages and cross-cuts may be expected to lead to important discoveries in a short time.

ROOKHOPE.—The 42 is set to drive at 70s. per fathom till under the old shaft. When the rise is put up rich ore ground will, probably, be opened. There are two men driving in back of the adit level in ground worth 15 cwt. per fathom. Four men stopping in back of the 15, worth 2½ tons per fathom. Four men opening ground in the 15, worth 12 cwt. per fathom. Two men stopping in back of the 25, worth 12 cwt. per fathom. Notwithstanding the severe weather and short days, the returns have been lately at the rate of 30 tons per month.

GROGWINION LEAD MINING COMPANY.—At the meeting, held on Wednesday last, the directors' report and balance sheet was unanimously adopted, and a dividend of 4s. per share, or 20 per cent., was declared for the half-year. It was also decided to issue the 2000 shares held in reserve at a premium of 2s. per share, the calls on the shareholders being spread over a period of 18 months. Mr. Kitto, the manager, stated that he believed the present rate of dividend could be easily maintained upon the increased capital, and that there was every reason to expect a considerable addition to the income as soon as the levels were more advanced into the eastern ground. Upon a motion that Mr. Horsley should be re-elected considerable discussion ensued, the meeting being of opinion that his services could advantageously be dispensed with, and the motion was lost.

PONTGIBAUD SILVER-LEAD MINING AND SMELTING COMPANY.—We are happy to learn that the subscriptions which Messrs. John Taylor and Sons have received for the relief of the sufferers by the recent fire have amounted to 109.1s. This sum is being distributed by Mr. Nosky Bontoux and Mr. Arthur Taylor, amongst the different families who were affected by the sad occurrence.

IRELAND—SLATE QUARRIES.—Some months ago we published a letter from Capt. Thomas on the slate districts of West Cork, and since then we learn that one of those quarries which have been recently opened is a great success, and as the demand exceeds the supply we are informed that other quarries in the same locality will be opened forthwith.

BRITISH LEAD MINES.—We are requested to state that the sixth edition of Mr. Murchison's pamphlet will shortly be published. It will, as usual, contain valuable and important information up to the latest date.

NOTICE OF REMOVAL.

MESSRS. F. W. MANSELL AND CO. (SWORN STOCK AND SHARE BROKERS), have REMOVED to 43 AND 43A, PALMERSTON BUILDINGS, OLD BROAD STREET, LONDON, E.C.

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75 Port Phillip, 12s. 3d.
35 Pennerie, 16s. 9d.
30 Parsy Mount, 12s. 9d.
60 Penzance, 13s.
25 Rockhope, 19s. 6d.
15 Richmond, 6d. 13s. 9d.
35 San Pedro, 21 5s.
50 South Aurora, 8s. 3d.
20 Sweetland, 7s.
25 Van Consols, 22 3s. 9d.
10 Tankerville, 43 11s. 3d.
25 W. Tankerville, 21½.
60 Great W. Van, 8s. 6d.
40 Last Chance, 18s. 9d.
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Notices to Correspondents.

* An inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

EAST WHEAL BASSET.—Can any reader inform me in what way I can gain correct information as to the prospects of East Wheal Basset? A report has just reached me of a meeting held on Jan. 16, when accounts were furnished to Aug. 31 last, and a call of 15s. per share made. The arrears of calls amount to £450, far more than the whole of the last call, and no ore was sold during 1876. Nothing is said of the working of the mine since August, but in the report of Wheal Basset meeting I observed that the shareholders complained of being inundated with water from East Raset. The captain is Mr. R. Pryor, and the purser Mr. H. L. Phillips. The large arrears seem to show that the shareholders feel but little confidence, and I have for a long time expected steps to be taken to wind it up.—B. J.

MINERALOGICAL SOCIETY.—"Mining Engineer"—(Holborn Hill).—The exchange of specimens is probably one of the objects of the Mineralogical Society, and there will be no difficulty whatever in obtaining membership. A letter addressed to Mr. J. Lohley Cogan, Scientific Club, Saville-row, London, will procure all particulars as to terms of admission, annual subscription, &c.

SOUTH PLYMOUTH.—Can any reader give some information about South Plymouth Lead Mine, in 12,000 shares, of 2s. each? I am a shareholder, and have paid all calls, but can get no information regarding the mine.—SHAREHOLDER.

Received,—"R. B."—"W. F."—"J. H. C." (Glasgow Caradon)—"A. B. G." (Yes)—"T. S."—"B. C." (Medlyn Moor)—"H. B. V."—"E. T."—"Enquirer" (Wheal Greenville): There cannot be any truth in the rumour.—Sampson Trevelyan—Wild Duck, or Sportsman's Arms: Next week—"Shareholder" (Van Consoles).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, FEBRUARY 3, 1877.

COLLIERY MANAGEMENT, AND EXPLOSIONS.

Much of the legislation which has taken place of late years in reference to mining operations seems to have been based upon the assumption either that colliery proprietors and managers are altogether indifferent to the lives and comforts of those in their employ, or grossly negligent of those means of safety which are placed within their reach. Whilst admitting that some of the explosions and mining disasters which have recently occurred show a censurable disregard of well known rules and regulations, we are by no means disposed to accept the theory of amateur legislators, and condemn the whole mining profession—careful proprietors and scientific able managers—for the lapses of the few. When we consider that we are raising in the United Kingdom something like 130,000,000 tons of coal annually, of the value of something like £5,000,000, or 50,000,000 sterling per annum, it will be at once evident that a very large number of men and boys must be engaged in this most dangerous avocation of extracting the precious "black diamonds" from the bowels of the earth, and that under the most careful regulations and management, and even the most favourable meteorological conditions, there must necessarily be a considerable sacrifice of human life, deplorable to all, but to none more so than the proprietors and those who have the practical management of our mines.

Several of the explosions which have recently taken place in our coal mines are unquestionably to be attributed to unusual and sudden atmospheric disturbances. The intimate connection of storms and explosions are not yet sufficiently understood, even by some of our principal mining engineers. Of course, the merest tyro in mining knows fully well that a low state of the barometer exercises a considerable influence over the entire ventilation of the mine—the pressure of air is relaxed, the long pent-up gases escape, and the operations of the pit are rendered more than usually dangerous. We have known cases in which collieries usually perfectly safe to work with naked lights suddenly become exceptionally dangerous with a very low barometer, requiring the greatest skill and caution to prevent explosions. Of course, the public generally, who know little or nothing of the difficulties to be surmounted in the adequate ventilation of mines, imagine that it is very easy to remove all danger and to surmount every difficulty; but those who have the every-day routine of a colliery under their care know by too sad experience that their best and most careful desire to provide "an adequate amount of ventilation as shall render harmless noxious gases," are liable to be overpowered by some sudden "blower," or the neglect of some precaution on the part of another, defying human presence or exertions to cope with. The late LIONEL BROUGH, one of Her Majesty's Inspectors of Mines, and acknowledged to be one of the most able mining men of his day, in one of his annual reports mentioned certain natural occurrences witnessed after the equinox, and he suggested that, as some of our annual groups of accident were coincident in time, they possibly had relation to the one with the other. Scientific investigations have of late gone far to prove that we are more or less affected by annual vibratory action; and it is possible that explosions in mines are far more intimately associated with, and affected by, violent disturbances, atmospheric or otherwise, than is usually supposed.

The official investigation into the Abertillery Colliery explosion has resulted in the most complete exoneration of all blame on the part of the management, and all who have read the evidence given at that patient and pains-taking enquiry must fully endorse the verdict of the jury. For some days previous to that unfortunate event a very low barometer was registered, and although the long practical experience and the ability of Mr. ADAMS is proof that he was fully prepared to cope with such emergency, and although the ventilation of the colliery was most admirable, it is possible that the low barometer contributed more or less to the unfortunate event; at least, the workings must have been more difficult, and the slightest irregularity sufficient to cause derangement of the ventilation. It will be a reflection upon Mr. ADAMS—in fact, upon the scientific managers of our mines generally—did we for a moment allow that atmospheric disturbances are not usually provided for and readily overcome, but circumstances will ever occur in which gas is suddenly tapped (in small airways, for instance), which no amount of ventilation will instantaneously remove, and hence explosions will occasionally occur in the best ventilated mines, the stringent provisions of the Act of Parliament notwithstanding—that is to say, unless the Legislature should entirely prohibit the use of naked lights, and compel all mining operations to be conducted with locked safety-lamps.

But whilst of the opinion that explosions and accidents will occasionally occur so long as mining operations are conducted as at present, we can have no sympathy with either proprietors or managers who wilfully defy the salutary provisions of the Act of Parliament, or set at naught proper means to secure the lives of the miners. We wish we could impress upon the public mind the fact that even upon the lowest ground—that is, the pounds, shillings, and pence point of view—a colliery explosion is the most expensive and most to be dreaded catastrophe which can take place to the colliery owner. Thousands of pounds are often wrecked in a moment of time, and the whole business of the mine suspended for months by explosions; and it is, therefore, manifestly the interest, as it is no less the duty, of the proprietor and manager to guard as much as possible against such a calamity. But not only so, colliery proprietors and managers are now surrounded by most stringent Acts of Parliament, the wilful or neglectful violation of which renders him liable to most serious consequences, penal and otherwise. Legislation has assuredly gone far enough in this direction, and we deprecate, therefore, the everlasting cry which is raised for further restrictions being hedged round the colliery proprietors and managers in the prosecution of their laborious undertakings. The first general rule of the Mines Regulation Act provides that "an adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of such mine and the travelling roads to and from such places shall be in a fit state for working and passing therein." It is also imperative that mines shall be provided with two shafts—the downcast and the upcast; and we have no hesitation in saying that if

these two provisions were carried out in their entirety, they would amply provide for the safe working of all collieries under any but the most exceptional circumstances. Life and death literally depend upon adequate ventilation, and by none is this more recognised and appreciated than by the colliery proprietors and managers generally, and its importance and seriousness are readily acknowledged by all who have the practical management of our mines. Some persons, however, who have to do with our mines have lately shown a lamentable disregard of these well-known laws and regulations, and it is only right that such should be visited with severity.

THE AMERICAN IRON TRADE.

American ironmasters and ironmaking companies have been complaining almost as much of dull times as their English brethren, or contemporaries, for we are afraid there is not enough love lost between them to justify the employment of the first expression. Business in iron rails has been rather seriously curtailed during the last year or two in the United States—first, on account of the financial depression, which has checked a further extension of railways; and secondly, from the use of steel rails instead of iron rails by all the most prominent American railroad companies. There are now, however, some symptoms of a revival in the demand for iron rails, principally from the South, and the American iron trade is expected to receive a slight impetus in consequence. Should the aspect of financial affairs experience an improvement in the United States the building and equipment of narrow-gauge railways will probably receive also an increased amount of attention; it is possible, however, that some of these narrow-gauge railways may impair the position of some of the older railroad companies, and so diminish their rail-purchasing power; this, however, is rather a remote contingency. It is feared that there will be little increase in the demand for pipes from municipal corporations, as the stringency of the times renders corporate bodies indisposed to engage in heavy additional expenditure. Some activity is anticipated in the demand for plates upon the American markets; a revival in iron shipbuilding industry is also regarded as not improbable. Other branches of the American iron trade show little immediate prospect of a change for the better. Upon the whole, however, the current outlook of the American iron trade is considered to have slightly changed for the better. The cost of production has been brought down to the lowest point, and stocks are small, although a large number of furnaces are standing idle, and are ready at once to go into blast.

The American iron trade is probably exposed to greater vicissitudes even than the English from the vertiginous tone of American commerce and society, by reason of the absence in the United States of a stable middle class. Here and there one meets in American life with some great capitalist, but he is a rare exception; and, upon the whole, the Americans have probably less accumulated capital for each individual than is possessed by the principal countries of Western Europe. The consequence is that when some severe panic or depression prevails the great mass of the American people bend before the blast, and are utterly powerless to resist it. On the other hand, as they have not very much to lose, they soon rally from its effects. The JAY-COCKE panic, which began to make its evil influence felt in September, 1873, inflicted probably greater damage upon the commercial interests of the United States than any of its predecessors, because it originated in the projection and prosecution of a terribly long list of premature railroads. In 1871, 1872, and 1873 the Americans actually constructed somewhere about 6000 miles of railroad annually, while their projections attained fabulous proportions. As many of the lines opened in these three wild years could not possibly clear their working expenses, and as many of the premature projections had only the effect of involving their projectors in enormous losses, a great shock was given in the autumn of 1873 to American railroad enterprise, and to American enterprise generally; and although we have now nearly arrived at the spring of 1877, the recovery from this shock is still only partial.

It is not, however, only to the excessive projection of premature American railroads that we must attribute the misfortunes which have befallen the American commercial world during the last three years. The shoddy aristocracy, which sprang into existence during and after the great civil war of 1861-5, did not improve the tone of American society or American commercial life. Reckless extravagance, unsound finance, disregard of future consequences—these were some of the evils which the shoddy interest brought in its train, and even now we see traces of the mischief which they have wrought. The general tendency of society—and even of American society—is, however, in the right direction; and great as present misfortunes may be, matters are tolerably certain to improve in the end. It may be hoped, under all the circumstances, then, that the great American panic of 1873 has at last reached the stage of recuperation and amendment. Should this hope be realised, its realisation may, however, not be attended with very much benefit to the English iron trade.

GEOLOGICAL SOCIETY.—The next meeting will be on Wednesday, Feb. 7, when the following papers will be read:—1. On the Chemical and Mineralogical Changes which have taken place in certain Eruptive Rocks of North Wales, by Mr. J. A. Phillips, F.G.S.—2. On New Species of *Belemnites* and *Sclerites* from the Middle Tertiaries of South Australia, by Prof. Ralph Tate, F.G.S.—3. On *Manisuris* *Gardneri* (Seeley), an Elasmobranch from the base of the Gault at Folkestone, by Prof. H. G. Seeley, F.G.S.

COAL AND IRON IN THE UNITED STATES.—Mr. Chanate, the chief engineer of the Erie Railway, recommends the renewal in iron of 173 wooden bridges upon the system; the cost of this renewal is estimated at \$350,000. The production of anthracite coal in Pennsylvania in 1876 is returned at 18,350,950 tons, as compared with 19,880,082 tons in the corresponding period of 1875, showing a decrease of 1,529,132 tons last year. The production of bituminous coal in Pennsylvania in 1876 was 3,650,163 tons, against 3,894,691 tons in 1875, showing a decrease of 244,528 tons last year. The aggregate production of coal—anthracite and bituminous combined—in Pennsylvania last year was thus 22,001,113 tons, against 23,774,776 tons in 1875, showing a decrease of 1,773,663 tons last year. The total movement of coal and coke over the Pennsylvania Railroad last year amounted to 4,551,322 tons, of which 3,695,430 tons were coal. The general condition of the American iron trade is considered to be better than it was a year since. The cost of production appears to have been brought down to the lowest point, and stocks are small; it seems accordingly unlikely that anything further can occur to depress the market. A drawback is, however, found in the fact that many furnaces are standing idle, so that the capacity of production is in excess of any probable legitimate demand. Coal has been discovered at several points in Western Colorado and Eastern Utah.

COLLIERY ACCIDENTS.—Mr. Ellis Lever writes to the Times, from Manchester:—In your report of the colliery disaster at Farnworth, near Bolton, involving the loss of 18 lives, it is stated that the accident occurred through the ignition of the brattice cloth used in the ventilation of the mine. As a manufacturer of brattice cloth for more than 20 years, and inventor of the flexible canvas tubes for colliery ventilation, which obtained the award at the International Exhibition 1862, may I be allowed to say that nearly 14 years ago letters patent were granted me for an improved composition to make brattice cloth and tubing non-inflammable? Since that period my patents have lapsed, and others are manufacturing and supplying these materials, more or less non-inflammable, at about the same price as the same article otherwise prepared. This safety brattice cloth is extensively used in many of the largest and best-managed collieries in the Kingdom; but in November last I felt it my duty to send out a circular warning colliery owners that a large quantity of common and inferior material coated with a composition of a highly inflammable and dangerous character was then being offered as brattice cloth, and cautioned them against the risk incurred in using the same. I have met with brattice cloth which has been steeped in gas tar, creosote, petroleum, and other oils, and I have

known instances of cloth so prepared taking fire in the colliery storehouses from spontaneous combustion just as oily cotton would do. To introduce any additional source of danger into collieries where, unfortunately, so many are known to exist already, would be looked upon as a most imprudent step. Under a recent Act of Parliament provision has been made for the appointment of duly qualified managers who are supposed to be responsible for the safety of the colliery. If these gentlemen would in future see to it that the brattice cloth of the proper quality be obtained and used in the colliery under their charge we should hear no more of such fearful accidents (so-called) as that at Farnworth.

COAL ASSOCIATION FOR LANCASHIRE.—A meeting of the members of the Lancashire Coal Trade was held in Manchester, on Monday, for the purpose of forming a coal association for the county. Mr. George Ormerod, of Bury, presided. There was a large attendance. The Chairman said one of the principal objects of the association about to be formed was to take action in regard to the railway companies delaying wagons in course of transit. If they suffered in this way the public would have to pay. Therefore it was a question.—The meeting then discussed a number of resolutions which had been drawn up, and decided to form themselves into an association with the view to protect themselves.

RATING MINES.—In the Common Pleas Division, on Monday, cause of the Tyne Coal Company v. the Overseers of Wallsend, a rating appeal, involved a question of great importance to owners of mining property. The appellants are lessees of a colliery, the lessors being the Ecclesiastical Commissioners. The lease is for years, at a rent of 2000 a year, and dated 1864. The colliery was flooded out in the year 1854, and from that date down to the present time the water has never been pumped out. The appellants are also lessees, but from a different landlord, of some surface land on which had been erected two large reservoirs, some boiler-house, an engine-house, and a large stack or chimney. The boiler-house contains 12 boilers set in masonry, and in the engine-house are two engines. There is also a railway from the colliery to a wharf on the Tyne, for the purpose of conveying coals for the boilers. Up to the year 1870 the amount of water in the mine became considerably reduced by the pumping, but from the year 1870 down to the present time the water had remained at about the same level. The appellants in their case admitted that they were not able in respect to the surface land they occupied, but they claimed that they were rateable for the colliery, reservoirs, boiler-house, engine-house, or other plant. It was contended that the colliery being worked was unproductive; and the reservoirs, &c., were part of the colliery.—For the appellants were Mr. Herschell, Q.C., Mr. Ridley, for the respondents, Sir Henry James, Q.C., and Mr. G. Webster.—The arguments occupied a considerable portion of the day. At their conclusion, the LORD CHIEF JUSTICE delivered judgment for the appellants, on the ground that the engines, reservoir, railway, and other subjects as to which the rate was questioned were part of the unproductive colliery. They were part of a valueless whole, and, therefore, not liable to be rated.—Mr. Justice GROVE concurred.

REPORT FROM CORNWALL.

Feb. 1.—Who can say when we shall see a definite change in the condition of mining affairs? Assuredly not the present view, though the horizon does look clearer than it did, and greater hopefulness is expressed on all hands. But what is the good of a feeling of hopefulness, or of what advantage is a brightening prospect, the hope is deferred, or if the prospects never brighten to the state of a rise in the standard? We want more satisfying means than mere hope and brightening prospects, and no one can have waited long enough, and with more or less of patience. There are wonderful tales to hand of a great tin district in Mexico, where the tin ore is found so rapidly that if you work the lode and wait a few years, by-and-bye you get a fresh crop, that has not affected the market here yet, nor is it likely to. The Mexican field is altogether too promising, and whatever theories may have been held about the formation of tin ore, we never on this side of the Atlantic fallen back on Topsy's philosophy—"Spects it grows"—in this literal and unsophisticated fashion, though, of course, there is a sense in which it may be said to grow.

It does not seem as if it would take much just now to re-instate the home smelting system, and the sale of the block tin by the miner instead of the black. But even when matters seem on a very brink of realisation there are often unexpected difficulties, delays, and so the experiment may yet be put off. That it will make we have very little doubt, and some of that superfluousness which now and again shows itself in such matters as the discharge of managers, would soon solve the problem if only it could be directed into this proper and useful channel. It would not take long to see what was the value, or the contrary, of the theory that produce of different mines must be mixed to produce a gold marketable metal. What became of the tin which was smelted on the mines in the days before smelting houses, or of that which was smelted for the miners in the days—later still—when the smelter was a smelter, and got his profit out of smelting the metal, and not out of its sale? It could not have been worth much according to the modern theory, and yet it sold.

There has been a certain amount of undeservedly censorious criticism on the proceedings at the last meeting of the Mining Institute when Mr. Cannack read a paper on "Explosives," and there was very mixed sort of discussion, in which every man contended for his own pet article—very much, as has been said on the "native like-leather" principle. But surely the subject was one which could most legitimately within the province of the Institute, and one which involves issues of considerable importance to miners, seeing that use of explosives is a matter of life and limb as well as of economy. It is probably idle to expect that we shall ever get an absolute safe explosive—one that will never go off except precisely when how it is intended to do so—but that is no reason why we should not use every means in our power to get the safest, and in proportion to the work done and the mode of use, the cheapest. It is quite true that neither the paper read nor the speeches which followed contributed very much to the solution of this problem. We learn that there are mines in Cornwall even yet where the safety fuse is unknown in the sense of being unused, and that there is a much stronger amount of faith in black powder than might have been supposed; but when the new explosives came under notice every doctor differed, and everybody thought his own child the fairest. Cannot the Mining Institute go a little beyond this, and arrange for a series of trials under competent supervision? Such things have been talked of before now, but as yet without any result. The question is really a most important one, and there is no reason why the Institute should not have the credit of solving it.

The County Adit commenced by the Messrs. Williams, of Scourie, about 120 years ago, for the purpose of draining the mines in the Scourie and Gwennap districts, has been of immense value in time past, when mining operations in those parts were of greater extent than at present, and will undoubtedly be of service to future generations. The main trunk of the adit from its outlet at Bissell's Treleigh Wood Mines, near Redruth, is fully 6 miles in length, and probably its various branches extend an additional 10 miles, so it is now maintained in repair by a levy being made on the mines at work, and on the lords of the abandoned sets through which it passes. At the annual meeting of the adit committee, held last week, the accounts showed an expenditure of 246l. in the last 12 months, while on the other side 634l. had been received for water washed out of the adit, and collected near its mouth, after allowing the water to settle. A discussion ensued as to the utilisation of larger quantity of ochre, it being the opinion of some present that more might be collected and sold, and after this the usual levy was made on the lords and mines in the district to supply the balance deficient. The report of Capt. Gerrans stated that the adit generally was in good condition. Mr. T. Pryor brought forward the question of the flooding of Wheal Pevor, which Capt. White said had been

the consequence of an obstruction in the County Adit, but evidence on this point being conflicting it was decided to appoint an independent agent to examine the adit, and report on it at an adjourned meeting, which task Capt. William Rosewarne was unanimously elected.

REPORT FROM THE NORTH OF ENGLAND.

Feb. 1.—The condition of the coal trade remains as stagnant as if anything, appearances seem to indicate that it is a trifle worse in respect of the range of prices. Large stocks of coal have accumulated at many collieries, and one of the chief difficulties of the moment is dependent upon the question whether and how far these stocks can be profitably utilised. Three or four years ago the small and small coal accumulated at the Durham collieries were mostly run after, but now it is all but impossible to find customers for such produce; and in Northumberland the small steam coal does not yield more to the owner than 6d. or 1s. per ton. The only kind of coal that is in anything like fair request at the present moment is coking coal, which forms the staple produce of the great South Durham coal field. Indeed, it has been calculated that out of the 19 odd million tons of coal now annually raised in South Durham nearly one-half is disposed of in the form of coke, which is not only employed in Cleveland to the extent of some 3,000,000 tons—representing 5½ million tons of coal—but is also sent to Sheffield, North Lancashire, Cumberland, and elsewhere, to be employed—as it is more largely than any other fuel—in the manufacture of hematite iron and steel, and for foundry purposes. The demand for coking coal has increased more rapidly and more steadily than any other, and were it not that the resources of production have been opened out to an even more than corresponding extent it is probable that the business done in this respect would now be highly satisfactory. As it is, there is a market open for almost as much coke as the trade is now producing; but the competition that obtains renders the range of prices extremely low and unsatisfactory, the best qualities being quoted at only 11s. per ton, while 9s. 9d. per ton is accepted for secondary sorts.

There is not as yet any tangible result arrived at in respect of the sliding scale arrangement proposed in the Durham coal trade. The miners are at present paid at the rate of 5s. per day, or a fraction over that amount, and if they could always command six days work in a week their earnings would obviously be tolerably good, and relatively excellent, especially when it is considered that they are allowed house and coals free of charge, which may at least be considered as the equivalent of another 5s. or 6s. per week. But the truth is that no collieries are worked at the rate of twelve days per fortnight. Most pits are not now working more than eight to nine days per fortnight, and some of them are employed even less than that, so that the miners have their earnings greatly curtailed by circumstances over which neither themselves nor their employers have any control. In this position, with the pinch of poverty within their doors, and felt all the more keenly by reason of the recent high wages they were able to command, it is probably not a matter of real surprise if they should be averse to adopting a lower minimum range of wages than that they are now receiving. But, on the other hand, the owners have ample cause, in the present serious depression of trade, and the not over favourable prospect of the immediate future, for requiring that there shall be a lower minimum still; and although the 4d. per day in dispute is not a great deal to haggle over, it is sufficient to induce each side to remain firm to their position.

The "Billy Fairplay" system has now got fairly into work in the Northumberland Steam Coal Trade. At some collieries, pending the completion of local arrangements, it has not yet been got into full swing, but generally it has been applied, and as far as I can learn with highly satisfactory results, the increased yield of round coal being unimpaired, while the miners are able to earn equally good wages as they did under the old system.

From private sources I am informed that Mr. Lindsay Wood, the much esteemed son of the late Nicholas Wood, the friend and companion of Stephenson, and the most notable of North Country viewfinders, has continued to persevere with the application of coal-cutting machinery, and he has at the present time several coal-cutting machines on the Garsheirrie principle, at work at the Helton Collieries, with the most successful results. The machines are worked by compressed air, which is generated at the surface and carried down to the workings in pipes, partly of iron and partly of gutta-percha. It is not a little singular that Mr. Wood's excellent example and steady application in this direction should not have been more generally followed. If there ever was a time when coalowners could afford to lay off their pits, or otherwise make arrangements, with the view of introducing mechanical coal hewing it is the time now present, and Mr. Wood and others have proved unmistakably the superior economy of the system.

At the Whitburn winning, which is situated on the seashore, between Sunderland and Shields, and which was temporarily abandoned about a year ago, because of the difficulty of dealing with the large feeders of water issuing from the limestone formation by the ordinary process of pumping—notwithstanding the erection of very heavy machinery—the Belgian mode of sinking, known as the Chaudron system, although identified with joint names of Kind and Chauiron, has now been adopted, and the results are expected to be highly satisfactory. This system of sinking consists in boring from the surface *à niveau plein*, or without taking out any of the water, and then completing the tubbing, or lining, before proceeding to pump the water out. I am not aware that the system has heretofore been adopted in the great Northern coal field.

The Iron Trade of Cleveland is a trifle duller than it was. Very little business, indeed, is being done in pig-iron, and prices are less firm than they were, No. 3 being quoted on Tuesday at the rate of 45s. to 45s. 6d. per ton, representing a decline of about 6l. per ton on the prices of the previous week. In other respects the *status quo* is maintained. Finished iron makers are doing a very inconsiderable amount of business, and this is more particularly true of rail manufacturers, who cannot secure any bulk of orders in competition with the lower rates quoted by Welsh firms. Cleveland quotations for iron rails are from 5l. 10s. to 5l. 15s. per ton, and for ship plates 7l. 5s. to 7l. 10s. per ton.

At the yearly meeting of the Board of Arbitration and Conciliation in the finished iron trade of the North of England, held at Darlington, on Monday, it was reported that there were now 22 works and 8067 operative members connected with the board, being a decline of about 10 works and 6000 operative members, as compared with three or four years ago. The standing committee presented a long, and, in the main, favourable report on the operations of the board during the past year.

REPORT FROM NOTTINGHAMSHIRE.

Feb. 1.—The Coal Trade of this district is in a most depressed state, and no improvement has taken place since the New Year set in. At the Teversall Collieries house coal has been reduced 1s. 6d. per ton; beyond this prices remain unaltered. In consequence of the depression in the coal and iron trades the masters at Shireoaks Colliery, near Worksop, have found it necessary to require that the special advance given to the men at Shireoaks in February, 1873, before they joined the South Yorkshire Union, be withdrawn in order to put them in the same position as the neighbouring collieries. The masters propose a reduction of 4d. per ton, or 12½ per cent., and they have informed the foremen of the banks that unless they consent to accept these terms they will be compelled to shut several of the banks and give notice to 300 men. The men held a meeting at the Golden Ball, Worksop, to consider their reply, but as the decision was arrived at. It is, however, thought that the men will accept the terms, though at present there is a doubt as to whether they will sign for 12 months. We have every confidence that the men will have the good sense to see the justness of the masters' proposal, and the absolute necessity of it to enable them to compete with others in the market at this period of bad trade. At the Steelley Colliery no less than 1000 applications for work were received in one week, a plain proof of the state of trade throughout

the country. A road has been got through to the Shireoaks pit. We understand that 150 men have been discharged at the Kiveton Park Colliery, owing to the stagnation in trade, and it is contemplated shutting up the Norwood Pit. Nearly a dozen stalls in the Denby Old Colliery, the property of Mr. W. D. Lowe, of Locko Park, are flooded. Pumping operations are being had recourse to, and it is hoped that the colliery will soon be in a workable condition. Work has been resumed at the Streetlane Colliery after having been flooded for nearly a fortnight, the water having risen to a height of 8 yards up the shaft. Some difficulty has been experienced at two of the Nottingham works—Messrs. D. New and Co., and the other at the extensive foundry of Messrs. Goddard and Massey. We are happy, however, in being able to say that no inconvenience will be felt by the employers, as the supply of good non-Union workmen, who are independent of the orders of any Trade Union, is greatly in excess of the number required, and there is no doubt but that piece-work, against which the workmen have struck, will become firmly attached to the above-named shops, if not to all the shops in Nottingham.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Feb. 1.—Little or no improvement is reportable in the finished iron industry of South Staffordshire. Concerns of all classes are greatly in need of new business, and only the small ones, where the principals take an active part in the management, are at all moderately occupied. Prices keep weak, but without any alteration in the crucial price of 9l. for marked bars. Pigs are being made to the full capacity of the 60 furnaces in blast, and they are mostly all selling or going into consumption when they are made by consumers, for common qualities are weakened in price by the rates at which some Lancashire and Northamptonshire iron may now be bought; but all mine qualities are firm on the basis of 4l. 5s. for hot blast, and 5l. 10s. for cold. Coal is abundant and easy in industrial samples, and furnace kinds are in over supply. Only those pits at which there is a domestic sale, and at which, furthermore, railway companies obtain supplies, are doing even a moderate business. In these last two branches there has been a little improvement this week, but at prices which are no stronger than those which regulated the last previous sales.

In the miscellaneous industries there is a trifle of improvement noticeable, and the prospects, by reason of the enquiries in the market for sanitary and such like requisites, are better than at any time these six weeks.

Joint-stock mining and iron-making property is not in much greater favour now than at the date of our last report. Patent Shaft and Axletree Company's shares are less neglected, recent sales having been at ¾ prem. John Bagnall and Sons have gone at under 4, and there are buyers at 3½; for the Chillington Company's Iron and Coal shares (also 10l. paid up) 4 is offered, but not accepted. On Tuesday Alldridge's Colliery shares changed hands at 26. Cannon and Huntington Colliery are offered at 1½ dis. (4l. paid), and the Hamstead (11l. paid) at 1½ dis. There is a call of a further 1l. on these shares. The money will contribute to the sinking charges of the company, whose property, it will be remembered, adjoins that of the Sandwell Park concern. So confident are the directors that the coal will be found that they are making their shafts, though they are yet far from the point at which it is at all likely the nearest seam will be met with. For the Spon Lane Colliery shares of 10 (8½l. paid) there are offers of 4½ dis. This concern is for the reworking of a property. The directors, after great difficulties arising out of the shaft and machinery requiring further repairs than were at first anticipated, have met with great impediments to rapid progress, and this has been increased by a great inflow of water. The shafts have been cleansed to the depth of 330 yards, and a heading has been driven to connect them; and to ensure a dry and permanent road the directors have resolved to drive to the Maiden Mine at a higher level than was at first intended. Mr. F. W. Peacock, in consequence of other engagements, has resigned the appointment of mining engineer to the company; and pending the election of his successor, Messrs. Joseph Cooksey and Son, of West Bromwich, are rendering the required assistance.

At the Railway Rolling Stock Company's forty-sixth general meeting on Tuesday, at the offices, Wolverhampton, the report of the directors was adopted, and dividends declared at the rate of 6 per cent. per annum upon the preference shares, and 8 per cent. upon the ordinary shares of the company. The Midland Wagon Company directors have declared an interim dividend for the half-year ending Dec. 31 at the rate of 10 per cent. per annum on the ordinary, and 6 per cent. per annum on the preference shares, free of income tax, payable on March 1 next.

On Monday and Tuesday an examination was held at the Swan Hotel, Wolverhampton, of candidates for mines managers' certificates. There were upwards of 30 applications, but only 21 candidates presented themselves for examination. The majority of the candidates belonged to South Staffordshire, though there were several from Lancashire, Durham, North Wales, and Derbyshire. The examiners were:—Chemistry, Dr. Alfred B. Hill, Birmingham; mechanical engineering, Mr. Jonah Davis, of Wolverhampton; and practical mining and surveying, Mr. David Peacock, of Tipton. The candidates were examined in both written and *visu voce* questions on the above-mentioned subjects. The work was not so heavy as last time, and the candidates were not so numerous. The result will be made known in the course of a few weeks.

There is no improvement to note either in the Coal or Iron Trades of North Staffordshire, and in Warwickshire some pits are being closed owing to a want of trade.

Mr. J. W. Oliver delivered a lecture "On Geological Theories: Past and Present," at the Midland Institute Scientific Society. Mr. Oliver expressed his regret that scientific teachers had so seldom the opportunity of lecturing on the rise, progress, and development of the science which they had to teach, in consequence of which the great debt which students of the present day owed to early investigators was almost entirely lost sight of. Mr. Oliver gave a succinct description of the various geological formations, illustrated by many excellent diagrams, and at length recounted many of the speculations of early geologists, more especially those on the true nature and origin of fossils; Mattiotti, an eminent Italian botanist, having stated that certain "fatty matter" set in fermentation by heat, gave birth to organic shapes; and Fallopio, of Padua, conceived that petrified shells were generated by fermentation in the spot where they were found; he also taught that certain tusks of elephants dug up in Apulia were mere earthy concretions. Mercator, in 1574, asserted that certain fossil shells now preserved in the Vatican Museum "were mere stones, which had assumed their peculiar configuration from the influence of the heavenly bodies." Mr. Oliver referred to Hutton, and his true successor Lyell, as the great founders of the modern school of geology called "Uniformitarianism," and in support of that school, and in opposition to the doctrine of the Catastrophists, who wished to speculate beyond the region of the known and the possible, said that as nature had set some bounds to our knowledge we should be content to set some bounds to our speculation, and as we could not know anything as to what exists below the oldest stratified rocks, or as to what was the state of the earth in the earliest periods of its history, we need have no desire to guess as to what is in the one case or was in the other.—There was a large attendance of the society, and a vote of thanks was accorded to Mr. Oliver for his most instructive lecture.

VALUE OF MINING ENGINEERS' SERVICES.—At the Wolverhampton County Court, on Monday, Mr. J. Richards, chartermaster, sued Mr. T. Cope, mining engineer, to recover 9l. 9s. In the summer of last year plaintiff was working a colliery at Willenhall for Mr. Hinekes, of that town, when a difference arose as to the quantity of coal raised, and the dispute was submitted to arbitration. Plaintiff engaged Mr. Cope to take measurements on his behalf, and Mr. Cope, hearing that his evidence would be questioned, appointed, with plaintiff's permission, Mr. John Hamilton to assist him. The arbitration ended in Richards' favour, and 79l. 9s. 4d. was, by the award of the arbitrator, handed over to Mr. Cope for payment to plaintiff. From that amount defendant deducted 9l. 9s. expenses and charges for the ser-

vices of himself and Mr. Hamilton. On receiving the residue plaintiff made no demur. He instituted the present proceedings on the ground that the charges were excessive. His Honour, after hearing the items of Mr. Cope's account, did not consider that one shilling too much had been charged, and accordingly found for the defendant, with costs.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Feb. 1.—Again it is my unpleasant duty to report that there is no change in the Iron Trade for the better. Everyone knows the extremely low ebb to which quotations have dwindled down; but even although this is the case there is a scarcity of orders, and it is doubtful if when obtained they prove more than barely remunerative. Clearances have been very small again this week, and only about 200 tons of bars have been shipped. The most promising branch of the trade is now the pig-iron department, and if it prove true that several works in Monmouthshire will at no distant date be occupied in making spigot pig then better days may dawn for this portion of the district. At Tredegar the improved condition of affairs continues, and at some of the other local centres—Rhymney among the number, where the company have recently commenced steel-making—business appears to be a bit brisker. On the other hand, we hear of furnaces being blown out, and this is again the case at Blaenavon, where yet another furnace has been put out of blast. It is now authoritatively announced that Mr. R. Fothergill, M.P., has resigned the managing directorship of the Aberdare and Plymouth Company, and that his resignation has been accepted. To turn to the steel industry, although the works in the district are limited in number there is a fair amount of business doing; and a fair share of the large steel rail orders now in the market ought to be secured by Welsh manufacturers. There are now about 1800 men locked out in the tin-plate trade. The masters, it appears, want the men to accept a reduction of 7½ per cent. in their wages. This they refuse to do; and at a meeting of the Swansea Valley men—between whom and their employers the dispute occurred—they have offered, instead, to work only three weeks out of every four until trade revives. The matter now so stands, and it is to be hoped that an amicable arrangement will be come to.

So far as the Coal Trade is concerned, there is no change to note in prices, which are firm. Shipments continue large to foreign ports. House coals, on account of the comparative mildness of the weather, are in less demand than usual at this season, and quotations are slightly lower. Patent fuel a slow sale. The strike at the Mardy Pit continues, and there is not the slightest prospect of a settlement; but the dispute at the Rhydydefydd Colliery, Swansea, has been settled, and most of the men have gone to work. The weather during the week has been very stormy, but comparatively speaking, very little damage has been done to the colliery workings. A petition to wind-up the Brynmawr Coal and Iron Company is to be heard shortly. A slight explosion of gas has again occurred at the Cwmcarne Pit, now being sunk as a shaft for the Abercarne Colliery. Four men lost their lives here about six months ago. In the above-named instance, however, fortunately, no one was hurt.

A new invention in the shape of safety-lamps is about to be brought out by Colonel Shakspear, F.R.S. and C.E., Chairman of the Cardiff and Swansea Coal Company. The lamp is said to give more light than a naked candle of the ordinary description used in the workings. A great improvement is also said to be introduced in the mode of ventilating the lamp; and it is further stated that recent experiments have proved the value of the invention.

TRADE OF THE TYNE AND WEAR.

Jan. 30.—The Coal Trade on the Tyne has been better during the past week, and the sailings have been very numerous. There is less excitement about the Eastern Question, but confidence is not restored, very far from it; there has, however, been an increase of foreign business, especially to the Mediterranean. Gas coal continues to be shipped freely to supply contracts. The demand for house and steam coal has improved a little. Although a number of collieries have been closed, and more are to be shortly, yet the supply far exceeds the demand, but it must be borne in mind that numbers of new collieries have been opened in Northumberland and Durham during the past four years. The quantity of coal raised at some collieries is also enormous, as at many places night shifts are worked in addition to the usual day shift. At the new colliery at Silksworth about 1000 tons per day is now raised, and a second large winnig-engine will be erected soon. It is intended to work three of those large engines, when the output it is expected will reach 3000 tons per day. At the Ryhope Colliery 2500 tons were raised on Friday last, and the usual daily quantity varies from 2000 to 2500 tons.

Sinking is to commence at once at Whitburn on the Belgian system, and it is expected that although the limestone is very hard here the cost of sinking will not exceed the cost of sinking by hand labour, as the work is done by machinery, and only a few hands are employed. The cost of raising the water is also entirely avoided, and when the bottom of the limestone is reached, and the sand feeders passed through, the water can then be dammed off by metal tubbing, and the remainder of the shaft can be sunk in the ordinary way if it is considered advisable to do so. The depth of the limestone and sand is about 75 fms. from the surface. One of the most important new winnings for coal lately undertaken in Durham is now approaching completion. This is the Windlestone Shaft; the site is near the ancient village of Rushford, a famous posting station in the olden time, 5 miles south-east from Bishop Auckland. This is the extreme edge of the coal basin in this direction. The operations have been in progress three years, and a great deal of water has been met with—at one time 2600 gallons per minute were pumped. One of the shafts is now down 120 fms. The Brockwell seam is expected to be reached at 180 fms. Two seams of coal have been passed—one 30 inches and the other 24 inches in thickness. These shafts have been sunk by hand labour in the usual manner, and owing to the large feeders of water met with the cost has been very heavy, the experiments about to be tried at Whitburn must, therefore, be of great interest, as it is probable that shafts can be put down through water-bearing strata at a less cost by this method than by the old method.

About 90 men and boys at the Wheatley Hill Colliery have received notice to leave, owing to the bad state of trade. The lock-out at the Alexandra Colliery, West Rainton, still continues; this has been brought about by the men, who have lately reduced the working hours one hour per day. The masters have, therefore, determined to stop the works entirely unless the men return to the number of hours it has been the practice to work for a long period at this place, and it must be conceded by all reasonable men that the present time is not a suitable one to reduce the hours of labour; the working hours are, in fact, generally much too short already.

The Chemical Trade is doing better since the turn of the year, and a large amount of business has been done. Stocks are not heavy at the works, and there is a feeling that this trade, which is a very important one, will revive considerably during the spring. There has been a good deal of speculative business done in it lately, and any orders for forward delivery can only be executed at enhanced rates. Some speculation has been going on, and a good business is expected to be done this spring both with the Continent and with America.

The dispute between the Durham Miners' Associations and the Coalowners' Association is far from settled; it is, however, hardly accurate to put the matter in that form, the coalowner appearing to have little to do with the matter, and certainly have not the power to bring about any settlement of the question. The deputies have voluntarily left the Miners' Union, and have formed a Union of their own; at present they number close upon 2000 members. It is really, therefore, a secession from the ranks of the Miners' Union, but the worst sting in the question is the difference made in the wages of those deputies, as the men in the new Union are paid 4l. per day more than those who remain in the other Union. It will be well if this point could be settled in some way satisfactory to both parties.

A case of much consequence to colliery owners was heard in the Court of Common Pleas on Monday, before Lord Coleridge and Mr.

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The slate vein exceeds a mile in length, and has been satisfactorily proved to consist of slates of the finest quality, without pyrites or any other defect, and the quarry being already opened, and there is ample and unfailing water-power. It is accessible to the North Wales Cambrian line of railway by the Aberangell station, and the Dinas Mawddwy branch.

The vein is intersected by two valleys, each possessing water-power, and admitting of the quarry being thus worked at both points.

A map of the property can be had, and all other information obtained, on application to the Rev. JOHN PERCE, Bangor; the Rev. T. B. L. BROWNE, Bodfari, Denbigh; and Mr. RICHARD WILLIAMS, Solicitor, Denbigh.

FINE SILVER MOULDING SAND. **TO BE LET, in the neighbourhood of Mansfield, Notts, TEN** **OR TWENTY ACRES, or more if desired, of the FINEST SILVER** **MOULDING SAND. This is an excellent opportunity for large iron firms.** **For terms, &c., apply, by letter, to "B. H.," Post Office, Mansfield, Notts.**

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TO BE SOLD, BY PRIVATE CONTRACT, a 70-horse power
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FOR SALE, a SLATE QUARRY, in NORTH WALES.—
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FOR SALE, at NEW PEMBROKE MINE, near PAR
STATION, CORNWALL.
An excellent 80 in. cylinder PUMPING ENGINE, 12 ft. stroke in cylinder and
10 ft. in shaft, with cast-iron balance bob, and FOUR 12 ton BOILERS, in good
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ONE 20 in. DRAWING ENGINE, and TWO BOILERS.
ONE 20 in. STAMPING ENGINE, with three iron stamps' axles, carrying
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Also, OTHER GOOD MINE MATERIALS.
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about 65 fms. deep, of dry ground. A splendid lode has been found a few
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To view, apply to Mr. D. WILLIAMS, 36, Argyle-street, Swansea. For terms, to
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FOR SALE, BY PRIVATE CONTRACT, a 60-inch cylinder
CORNISH PUMPING ENGINE, 9 ft. stroke, equal beam, with first piece
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The best and cheapest small STEAM ENGINES made. Prices per actual
horse power:—

4 horse power	£16 0 0	50 horse power	£48 0 0
8 "	22 0 0	60 "	57 0 0
12 "	28 0 0	70 "	65 0 0
18 "	34 0 0	80 "	73 0 0
24 "	40 0 0	90 "	81 0 0

Governors and feed pumps extra.
BOILERS equally moderate. About 700 horse power, in different sizes, NOW
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STEPHEN BARKER begs to inform the Trade that he has the following arti-
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REFINED METALLIC BISMUTH.
OXIDE OF COBALT.
GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c.
NICKEL AND COBALT ORES PURCHASED.

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MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for
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In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN THE MATTER of the COMPANIES ACT, 1862, and of the
BOSWORREY MINING COMPANY.—Notice is hereby given, that a
PETITION for the WINDING UP of the above-named company was, on the
24th day of January instant, presented to the Vice-Warden of the Stannaries by
William Rosewarne, of Leedstown, in the parish of Crowan, within the said
Stannaries, the Purser and Principal Agent, and claiming to be also a Creditor of
the said company, and that the said petition is directed to be heard before the Vice-
Warden, at the Prince's Hall, in Truro, within the said Stannaries, on Thursday,
the 22nd day of February next, at Twelve o'clock at noon.
Any contributory or creditor of the company may appear at the hearing and
oppose the same, provided he has given at least two clear days' notice to the peti-
tioner, his solicitors, or their agents of his intention to do so, such notice to be
forthwith forwarded to the Secretary of the Vice-Warden, P. P. Smith, Esq.,
Truro.

Every contributory or creditor is entitled to a copy of the petition and affidavit verifying the same from the petitioner, his solicitors, or their agents, within 24 hours after requiring the same, on payment of the regulated charge per folio. Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 19th day of February next, and notice thereof must at the same time be given to the petitioner, his solicitors, or their agents. HODGE, HOCKIN, AND MARRACK, Truro, Cornwall (Petitioners' Solicitors). GREGORY, ROWCLIFFES, AND RUSSELL, 1, Bedford row, London (Agents of the said Solicitors). Dated Truro, January 27, 1877.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN THE MATTER of the COMPANIES ACT, 1862, and of the
TRELEIGH WOOD UNITED MINING COMPANY.—By direction of
His Honor the Vice-Warden, Notice is hereby given, that, on Wednesday, the 14th
day of February next, at the Registrar's Office, at Truro, in the county of Corn-
wall, at Eleven o'clock in the forenoon, this Court will PROCEED to MAKE a
CALL of NINE POUNDS PER SHARE on all the contributories of the said
company settled on the List of Contributories as present members thereof.
All persons interested therein are entitled to attend at the time and place afore-
said to offer objections to such call.
JOHN HENRY HAMLEY, Official Liquidator.
Dated Stannaries Court Office, Truro, January 30, 1877.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

PURSUANT to a Decree made in the Cause of THE SAINT DAY
FIRE BRICK AND CHINA CLAY COMPANY (LIMITED) VERSUS
CORFIELD.—The Creditors in respect of the West Roskear Mine, in the parish
of Camborne, within the said Stannaries, who have not received notice from the
Registrar of the said Court that their Claims have been admitted are REQUIRED,
on Saturday, the 10th day of February instant, at the hour of Eleven o'clock in
the forenoon, to COME IN and PROVE their DEBTS before the said Registrar
at his office, in Truro, or, in default thereof, they will be PEREMPTORILY
EXCLUDED the BENEFIT of the said DECREE.
JOHN R. PAULI, Plaintiff's Solicitor, Truro.
Dated Registrar's Office, Truro, 1st February, 1877.

SALE OF AN IMPORTANT MINERAL ESTATE.

MR. W. P. STEPHENSON is instructed to SELL, BY AUCTION,
at the Royal Hotel, Cardiff, on Thursday, 15th February, 1877, at Two for
Three o'clock precisely, subject to conditions of sale to be then produced, all that
Freehold Farm called
G R A I G W E N,

Situate in the parish of Llanwynno, near Pontypridd, Glamorganshire, and containing 130 acres or thereabouts of pasture and woodland, with the VALUABLE MINERALS underlying the same, including all the SEAMS of HOUSE and STEAM COAL for which the Aberdare and Rhondda Valleys are celebrated (some of the more important of which are now worked upon the adjoining properties of the Great Western Colliery Company), as well as beds of excellent fire-clay and building stone. The property is situate near the Taff Vale Railway, within one mile of the rapidly growing town of Pontypridd, and about 13 miles from the shipping port of Cardiff.

It is intersected by the road leading from Glog to Pontypridd, and being on an eminence overlooking the town the surface is eligible for building purposes, while the commanding position of the estate with regard to adjacent mineral properties must ensure the early development of its minerals. Plans and particulars of sale are in preparation, and may be had on application to Messrs. DALTONS, SPENCER, and CORBETT, Solicitors, Cardiff; to E. B. REECE, Esq., Solicitor, Cardiff; to WM. ADAMS, Esq., Civil and Mining Engineer, Cardiff; or to the Auctioneer, 21, Queen-street, Cardiff.

BY ORDER OF THE DIRECTORS OF THE MORBEN SLATE
AND SLAB COMPANY (LIMITED).

A VALUABLE LEASEHOLD SLATE QUARRY, situate three miles from
Machynlleth, Montgomeryshire, and on the high road to Aberystwith, contain-
ing an area of upwards of 17 acres, and held for an unexpired term of 32 years,
renewable for 40 years, at a royalty of 1-15th.

MESSERS. GREEN AND SON are instructed to SELL, BY
AUCTION, at the Auction Mart, Tokenhouse-yard, London, on Friday,
16th February, 1877, at One for Two o'clock precisely, in One Lot, the VALUABLE
LEASEHOLD SLATE QUARRY, known as

THE MORBEN QUARRY.

Situate in the parish of ISSAGAROG, three miles from Machynlleth, Montgomeryshire, and on the high road to Aberystwith, together with all the fixed and loose MACHINERY, IMPLEMENTS, and other EFFECTS in and about the said quarry; also, the right of user of Chacy Ellis Wharf, on the River Dovey, at the rent of £26, and the right of water, at the rent of £10 per annum—being close to the railway, and within 7 miles of Aberdovey by water, it is admirably situated for the carriage of the slabs and slates produced. There is also a residence for the local manager, and the other buildings and erections are of a thoroughly substantial character. The quarry and premises are held for a term of 40 years from 10th January, 1868, renewable for a further term of 40 years. The royalty is 1-15th of the produce.

Particulars, with plans and conditions of sale, may be had of the Morben Slate and Slab Company (Limited), 7, Westminster Chambers, S.W. (where samples of the slate may be seen); of Messrs. ELWES and SHARPE, solicitors, 8, Fumival's Inn, Holborn, E.C. (where the lease of the property, and agreement for right of water, may be inspected); at the Quarry; at the Herbert and Wynnstay Arms, Machynlleth; at the Bellevue Hotel, Aberystwith; and of Messrs. GREEN and SON, Auctioneers and Surveyors, 10, St. Swithin's-lane, London, E.C.

NOTICE.

POSTPONEMENT OF SALES.

THE MACHINERY AND MATERIALS at WHEEL ALICE
MINE, near St. Ives Road Railway Station, and the 24 in. ENGINE, with
11 ton BOILER, &c., at WHEEL EMILY HENRIETTA MINE, near Tucking-
mill, Cornwall, intended to be sold by Public Auction, on Tuesday and Wednes-
day next, the 6th and 7th of February, are POSTPONED UNTIL FURTHER
NOTICE.
W. T. DAVEY, Auctioneer.
Salem House, Scorrier, February 1st, 1877.

BURRA BURRA MINE, KENWYN, CORNWALL.

TO BE SOLD, BY PRIVATE CONTRACT, under a power of
sale contained in a mortgage, in one Lot, as a going concern, the LEASE or
MINE SETT under which the operations of the BURRA BURRA MINE have
been carried on, together with the WHOLE of the VALUABLE

MINING PLANT, MACHINERY, and MATERIALS,

Now being upon the said Mine, and comprising, amongst numerous other effects, a 45-in. cylinder PUMPING ENGINE, which is being kept at work. Possession may be had at once.

To view the Mine, apply thereon, and for further particulars to—
Messrs. SMITH and PAUL, Solicitors, Truro.
Dated Truro, 31st January, 1877.

TO BE SOLD.—A COLLIERY, OPENED AND IN FULL WORK,
containing the following, viz.:—The MAIN COAL (11 ft. thick) and the
FOUR-FOOT BEAM (both first-class steam coals) and the YARD BEAM (a good
house coal) advantageously situate for markets, being connected by a locomotive
line with a main line of railway and with the river where coasting vessels can land
at any time. Lease 19 years to run, which can be extended, and a large additional
acreage secured by arrangement. As the price required is low (being little more
than the value of a not heavy plant), an opportunity is offered for securing, with
a moderate capital, a colliery at present up to a production of 200 tons per day,
and capable of considerable extension.
Apply to Messrs. WALKER and SMITH, Solicitors, Chester; or Messrs. PEACE
and BELL, Solicitors, Wigan.

IN VOLUNTARY LIQUIDATION UNDER THE COMPANIES ACT, 1862.

THE NEW LLANGYNOG LEAD MINING COMPANY
(LIMITED).

TO BE SOLD, BY PRIVATE TREATY, ALL the BENEFICIAL
INTEREST of the New Llangynog Lead Mining Company (Limited) in the
LLANGYNOG LEAD MINES, comprising all the valuable, productive, and
extensive mines, veins, beds of lead, ores of lead, and other metals and minerals
known collectively as the Llangynog Lead Mines, and in the reservoir, water-
supply rights, easements, and interests thereto belonging, situate in the several
parishes of Llangynog, Llanrhaidr-yu-Mochnant, Hiranant, and Pennant, in the
county of Montgomery; and also the WHOLE of the movable PLANT and
MACHINERY of the said company.
The Llangynog Lead Mines have been a highly productive and dividend-paying
property.
The mines, machinery, and plant are in working order, and considerable quan-
tities of ore are now being raised.
The works may be inspected at any time upon application to the Manager at the
Mines. The leases and agreements may be inspected at the offices of Messrs.
LONGUEVILLE, JONES, and WILLIAMS.
All further information may be obtained, and maps of the property inspected
on application to Messrs. GUY HASWELL and SON, 54, Foregate-street, Chester
or HENRY DENNIS, Esq., Mining Engineer, Hafod-y-Bwch, Ruabon; or to Messrs
LONGUEVILLE, JONES, and WILLIAMS, Solicitors, Oswestry.

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TANK LOCOMOTIVES, 8 in. to 14 in. cylinders, always ready or in pro-
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ONE extra strong LOCO., 10½ in. by 20 in., 15 tons, in working trim; can be
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with link motion reversing gear, ready for delivery.
A 25-horse power PORTABLE.
An 18-horse power VERTICAL STEAM ENGINE, with link motion reversing
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A 9-ft. FAN MORTAR MILL, VERTICAL ENGINE, and BOILER.
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ENGINES, with slot link motion. Will be sold cheap.
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ENGINE, fitted with slot link motion for winding.
ONE 20-horse power double cylinder PORTABLE ENGINE.
Will be sold cheap, and are in first-class order.
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Also several smaller sizes.
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ON SALE, ONE 16 horse power double cylinder PORTABLE
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ONE 12 horse power PORTABLE ENGINE.
ONE 10 horse power PORTABLE ENGINE.
ONE 8 horse power PORTABLE ENGINE.
ONE 6 horse power PORTABLE ENGINE.
Equal to new, and will be sold cheap.
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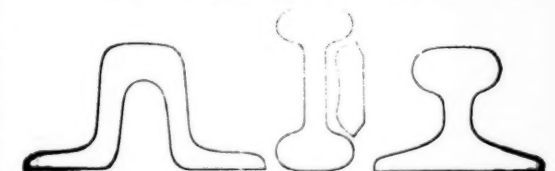
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10	Lydney and Wigpool Iron Ore [L.]	8	5 0 10
10	Marbella Iron Ore Co. [L.]	10	0 0 70
5	Mersey Steel and Iron Co. [L.]	5	0 0 0
10	Melland Iron Co. [L.]	5	0 0 3
5	Mold Argued Colliery Co. [L.]	5	0 0 0
10	Monkland Iron and Coal Co. [L.]	8	10 0 2
4	Mwyndy Iron Ore [L.]	10	0 0 0
100	Nant-y-Glo and Blaiza (S. p. c. pref.)	100	0 0 19
1	Nerbudha Coal and Iron	0	0 0 0
20	New Sharlston Collieries [L.] Pref.	20	0 0 0
10	Newport Abercrom Coal Co. [L.]	10	0 0 6
10	Northampton. Coal, Iron & Wagon [L.]	8	0 0 0
10	Northfield Iron Co. [L.]	8	0 0 10
1	Norton Green Coal Co. [L.]	1	0 0 0
35	Palmer's Shipbuilding and Iron [L.]	28	0 0 16
40	Partridge Iron and Bolt Co. [L.]	65	0 0 30
20	Patent Shaft and Axletree [L.]	14	0 0 7
20	Pelsall Coal and Iron. J. J.	15	0 0 0
50	Phoenix Bessemer Co. [L.]	40	0 0 0
50	Rhymney Iron Co. [L.]	50	0 0 23
100	Sandwell Park Colliery Co. [L.]	100	0 0 0
50	Ditto New	10	0 0 0
100	Shotts Iron Co. [L.]	100	0 0 0
100	Sheepbridge Iron Co. [L.]	58	0 0 10
50	Silkestone & Dodworth Cl. & Iron [L.]	27	0 0 10
20	Skerne Ironworks [L.]	20	0 0 10
50	Somersetshire Iron Co. [L.]	50	0 0 10

100	Staveley Iron and Coal Co. [L.]	60	0 0 ..	23 1/2
100	Ditto ditto New	10	0 0 ..	14
20	South Cleveland Ironworks [L.]	29	0 0 ..	
20	Wanslea Valley Steam Coll. Co. [L.]	6	0 0 ..	
1	Thames Iron Company	100	0 0 ..	
50	Tredgair Iron and Coal Co. [L.]	12	0 0 ..	5
25	Ditto B. shares	25	0 0 ..	1 1/2
20	Tlverston Mining Co. [L.]	12	0 0 ..	14
1	United Bituminous Collieries [L.]	1	0 0 ..	
10	Yancover Coal [L.]	5	0 0 ..	pr
100	Vickers, Sons, & Co. [L] 16 p.c. deb.	100	0 0 ..	4
60	Welsh Ironworks Co. [L.]	50	0 0 ..	
25	W. Cumberland L. and Steel [L.]	26	0 0 ..	10
1	West Mostyn Coal [L.] (12 p.c. pref.)	5	0 0 ..	
5	West Swansea Colliery Co. [L.]	5	0 0 ..	
10	Whitehaven Iron Co. [L.]	10	0 0 ..	
100	Wigan and Whiston Coal Co. [L.]	70	0 0 ..	
100	Wigan Coal and Iron Co. [L.]	75	0 0 ..	

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.]	10	0 0 ..	2 1/2
20	British Wagon Co. [L.]	10	0 0 ..	3
20	Sheffield Wagon Co. [L.]	15	0 0 ..	4
10	Yorkshire Wagon Co. [L.]	10	0 0 ..	4 1/2

TELEGRAPH COMPANIES.

*Bt.	Anglo-American	100	0 0 ..	4 1/2
10	Brilliant Submarine	10	0 0 ..	4 1/2
20	Direct United States Cab'e	29	0 0 ..	10 1/2
10	Eastern	10	0 0 ..	6 1/2
10	East. Exten., Australia and China	10	0 0 ..	7 1/2
10	Great Northern	10	0 0 ..	7
25	Indo-European	25	0 0 ..	12
10	Mediterranean Extension	10	0 0 ..	3
8	Reuters	10	0 0 ..	11
8 1/2	Submarine	100	0 0 ..	22 1/2
10	West India and Panama	10	0 0 ..	

20	Western and Brazilian	20	00	00
\$1000	Western Union, 7 per cent. Mort. Bonds \$1000	10	00	00
MISCELLANEOUS.				
Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100	00	00
25	Austral. Mort. Land and Finance [L.]	5	00	00
25	Australian Agricultural	21	10	00
10	Avonside Engine [L.]	7	00	00
Stk.	Baltimore and Ohio, 6 per cent.	100	00	19
Stk.	Cent. of New Jersey Con. Mort.	100	00	00
Stk.	Cent. Pacific of Calif., 1st Mort 6 p.c.	100	00	104
25	City of London Real Property [L.]	12	00	00
25	Copper Miners of Eng. (7 p.c. p.c.f.) ..	26	00	00
5	Credit Foncier of England [L.]	8	00	00
5	Diamond Rock Boring	14	10	00
15	English and Foreign Credit	8	00	00
16	Fore Street Warehouse [L.]	14	00	00
15	Flower, Potter, and Co. [L.]	10	10	00
5	Gen. Phos. & Chem. Works Co. [L.] ..	5	00	00
1	Glaisdale Whinstone Quarry	1	00	00
17	Hudson's Bay Company	17	00	15
10	Huntington Copper and Sul. Co.	9	00	00
Stk.	Illinois Central, \$100 shares	100	00	10
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100	00	94
Stk.	Idaho, 2nd Mt. 7 per cent.	100	00	12
Stk.	Idaho, 3rd Mt. Sinking Fund, 6 p. cent.	100	00	87
Stk.	Idaho, 6 per cent.	100	00	101
7½	Imperial Credit [L.]	7	10	00
	Idaho, Surplus Certificate	—	—	—
Stk.	Lehigh Val. Con. Mort. A, 6 p. cent.	100	00	58
10	Milner's Safe [L.]	10	00	90
25	National Discount [L.]	5	00	00
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10	00	85
5	Patent Transvaal Company	5	00	45
10	Pearson and Co. [L.]	6	00	00
50	Peninsular and Oriental Steam	50	00	38
Stk.	Pennsylv. Gen. Mort. 6 p. cent., 1910, 1910, 1910 ..	100	00	107
Stk.	Idaho, Con. Sink. Fund, 6 p. ct., 1905 ..	100	00	99
Stk.	Scottish Aust. Investment Company ..	100	00	175
Stk.	Idaho, 6 p. cent. Preference	100	00	121
10	Ribber Light (ord. sh.)	10	00	00
20	Suez Canal shares	20	00	00
12	Telegraph Construc. & Mainte. [L.] ..	12	00	27

10 Tharsis Sulphur and Copper Co. 10 0 0 . 25
Stk. Union Pacific Land Grant, 1st Mort. 100 0 0 . 10
Stk. Union Pacific Railway, 1st Mort. ... 100 0 0 . 10

*h, blend; c, coal; s, copper; g, gold; l, lead; s, silver;
s-l, silver lead; t, tin; z, zinc.*

* Limited Liability Companies: * quoted on the Stock Ex-
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